# DRUG & COSMETIC INDUSTRY

## APRIL, 1952

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FRANCIS CHILSON, Production Consultant
MILTON A. LESSER, Technical Editor
HARRY G. KELBLY, Raw Material Editor
FRANK CHILD III, News Editor
MAX FRANKEL, Art Director



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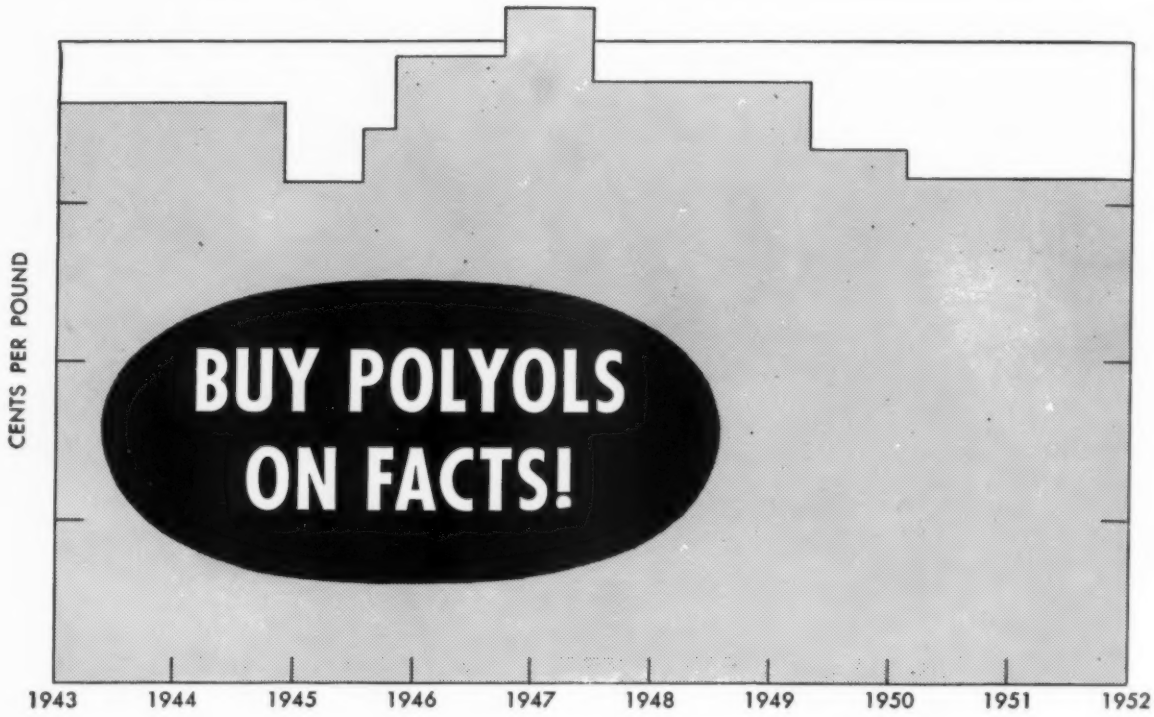
*Standard Oil Company* **(INDIANA)**

**910 South Michigan Avenue** **Chicago 80, Illinois**




**FACT No. 1** . . . ***Price and Price Stability***

The price trend of sorbitol continues downward as production is increased. Its price stability alone makes it the "best buy" in polyols.

**FACT No. 2** . . . ***Performance***

Sorbitol and other related Atlas polyols frequently outperform similar polyhydric alcohols. Sorbitol has a better taste, greater purity. It is utilized by the human body as food. Sorbitol has a narrower humectant range than other conditioners and is chemically stable.

Used in cosmetics, tobacco, glue compositions, protective coatings, food, pharmaceuticals, and other products, sorbitol has proved its quality characteristics.

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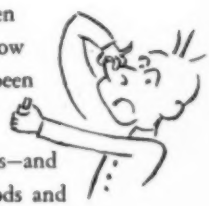
Each odor means a different formula. We've been working on it for two years and we know. We also know we haven't got them all licked yet. But because we've been at it for two years we're way out in front.



Candidly, we turned up some terrific results—and some stinkers. We're working on these not-so-goods and we'll lick them yet.

In these days of dog-eat-dog competition the only way we've been able to survive and expand is by thinking ahead of the procession.

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*And I gave 'em the Scripture text.*
*You keep your light so shining*
*A little in front o' the next"*
*—Kipling*

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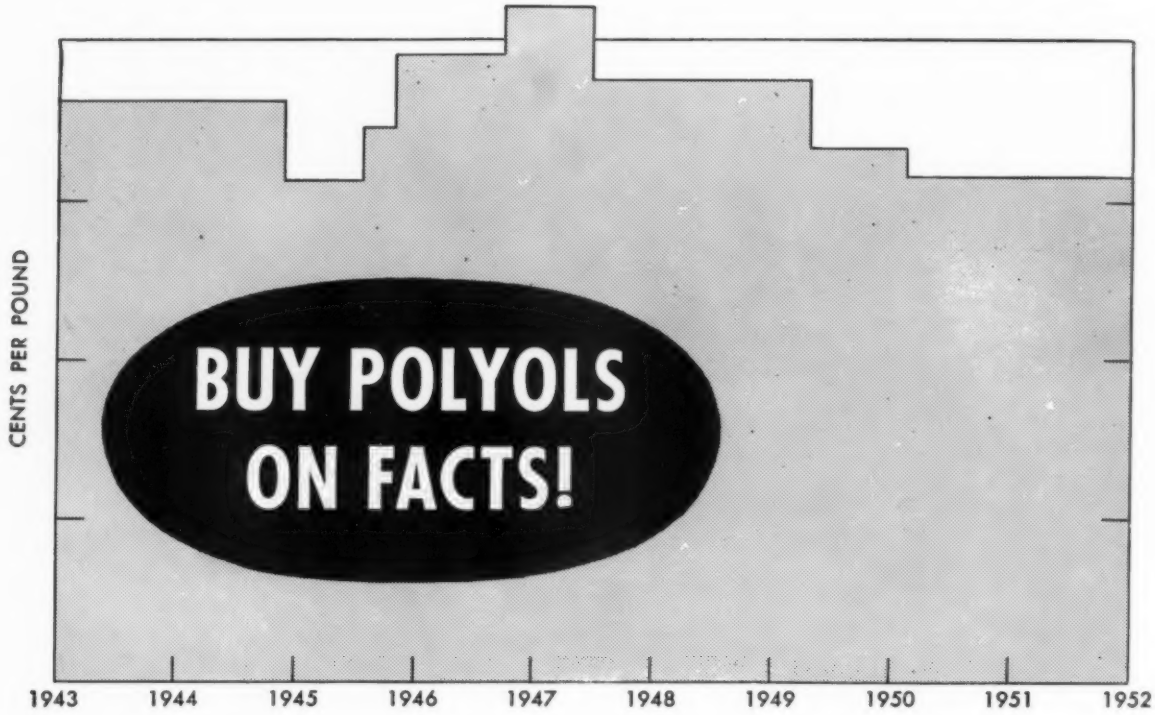


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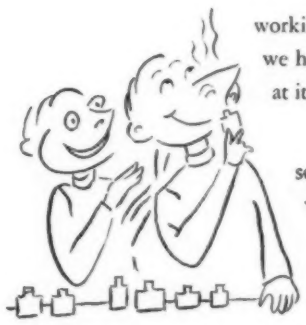

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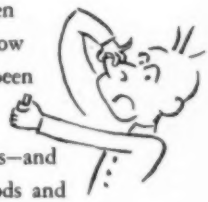

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*—Kipling*

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| CLOVE | BALSAM PERU | OPOPONAX |
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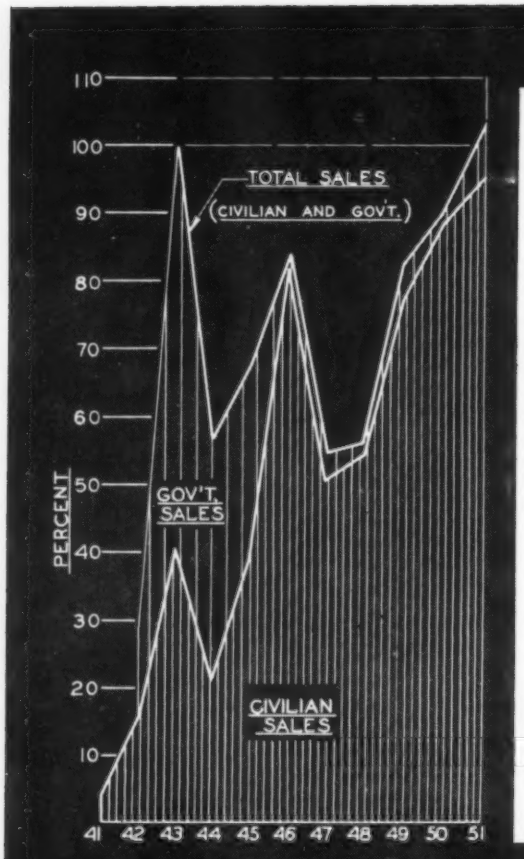


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| SANDALWOOD SYNTHETIC 50 | 7.75 " " " |
| VETIVERT SYNTHETIC 51 | 10.25 " " " |
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**Hooker Chemical Guide** (ONE OF A SERIES)

Use this handy reference to save time in selecting high-quality chemicals.

# HOOKER CHLOROBENZENES

## MONOCHLOROBENZENE

Synonym: Phenyl Chloride
Formula: $C_6H_5Cl$
Appearance: clear, colorless liquid

**TYPICAL PROPERTIES**

| | |
|---|---|
| Molecular Weight | 112.5 |
| Freezing Point | −44°C |
| Distillation Range | 131.2° to 132.2°C |
| Specific Gravity, 15.5°/15.5°C. | 1.114 |

**USES**

INSECTICIDAL INTERMEDIATE: DDT and other insecticides.

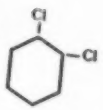
DYESTUFF INTERMEDIATE: sulfur black and brown dyes.

CHEMICAL INTERMEDIATE: organic synthesis.

SOLVENT: paints, varnishes, lacquers, paint removers; general use.

HEAT TRANSFER FLUID: suggested for condensing vapor systems, such as glass enameled vessel jackets, which cannot stand high steam pressures.

## ORTHODICHLOROBENZENE



Synonym: 1, 2-Dichlorobenzene
Formula: $C_6H_4Cl_2$
Appearance: clear, colorless liquid

**TYPICAL PROPERTIES**

| | |
|---|---|
| Molecular Weight | 147.0 |
| Freezing Point | −18° to −22°C |
| Distillation Range | 4° incl. 179.5°C |
| Specific Gravity, 15.5°/15.5°C | 1.310 |

**USES**

INSECTICIDE: termites, powder post beetles, wood borers, midges, flies, roaches, bed bugs, etc.

SOLVENT: gums, resins, tars, rubber, greases, oils, fats, waxes. Readily emulsified.

DEGREASING AGENT: metals, leather, hides, wool.

INTERMEDIATE: organic chemicals, dyestuff intermediates.

IN COMPOUNDED SPECIALTIES: metal cleaners, polishes, paint and varnish removers, etc.

HEAT TRANSFER FLUID: suggested for condensing vapor systems in temperature range 180° to 200°C.

## PARADI®

(Hooker Paradichlorobenzene)
Synonym: 1, 4-Dichlorobenzene
Formula: $C_6H_4Cl_2$
Appearance: white crystals
7 SIZES—Pea No. 1, Pea No. 2, Rice No. 1, Rice No. 2, Rice No. 3, Granulated, Powdered.

**TYPICAL PROPERTIES**

| | |
|---|---|
| Molecular Weight | 147.0 |
| Melting Point | 53°C |
| Boiling Point | 173°C |
| Flash Point | 73°C |

**USES**

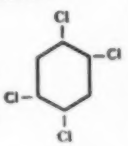
INSECTICIDE—REPELLENT: peach tree borers, black peach aphids, tobacco blue mold, clothes moths, carpet beetles, fish moths, garden centipedes.

HERBICIDE: used in cranberry bogs.

DEODORANT: in sanitary specialties, disinfectants.

INTERMEDIATE: organic synthesis; many dyestuffs including sulfur, azo, anthraquinone.

## 1, 2, 4, 5-TETRACHLOROBENZENE



Formula: $C_6H_2Cl_4$
Appearance: white flakes

**TYPICAL PROPERTIES**

| | |
|---|---|
| Molecular Weight | 215.9 |
| Chlorine Content | 65.7% |
| Melting Range | 137.5° to 140°C |
| Distillation Range | 240° to 246°C |

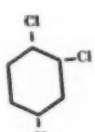
**USES**

INTERMEDIATE: 2, 4, 5-trichlorophenol; 2, 4, 5-trichlorophenoxyacetic acid; azo dyes.

INSECTICIDE: slightly active; suggested for dusting powder formulations.

IMPREGNANT: for fire and moisture resistance, electrical insulation; temporary protection in packaging.

## TRICHLOROBENZENE, Tech.



Formula: $C_6H_3Cl_3$
Appearance: clear, almost colorless liquid

**TYPICAL PROPERTIES**

| | |
|---|---|
| Molecular Weight | 181.5 |
| Freezing Point | 10°C |
| Distillation Range | 205° to 235°C |
| Specific Gravity, 15.5°/15.5°C | 1.465 |

**USES**

INSECTICIDE: soil poison for termites.

SOLVENT: fats, oils, waxes, resins; crystallization solvent.

HEAT TRANSFER MEDIUM: condensing vapor systems, 210° to 300°C.

DIELECTRIC FLUID: transformers.

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• *For detailed information* on items listed, drop us a note on your letterhead. Address your request to HOOKER ELECTROCHEMICAL COMPANY, 15 Forty-Seventh St., Niagara Falls, N. Y.

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| Corylopsis | Narcisse |
| Crechene | Neroli |
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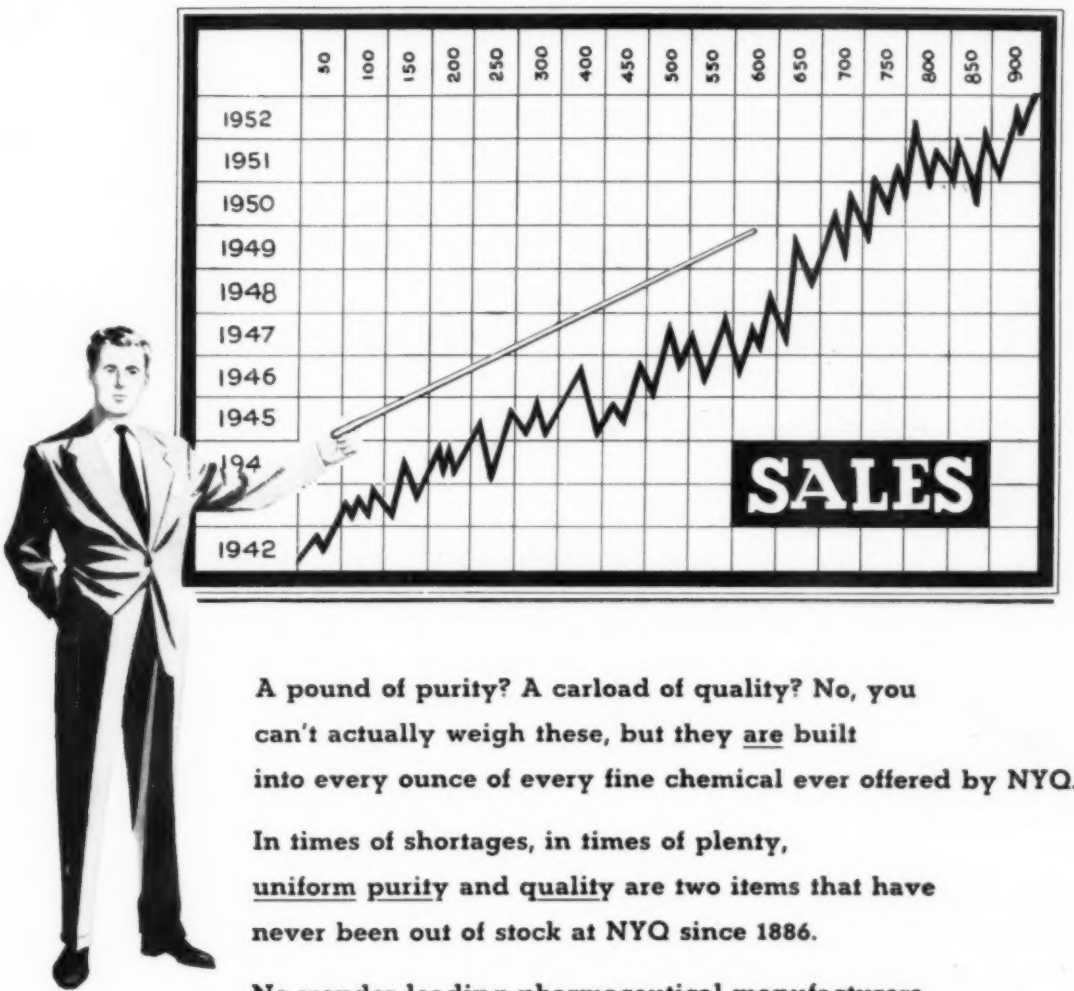


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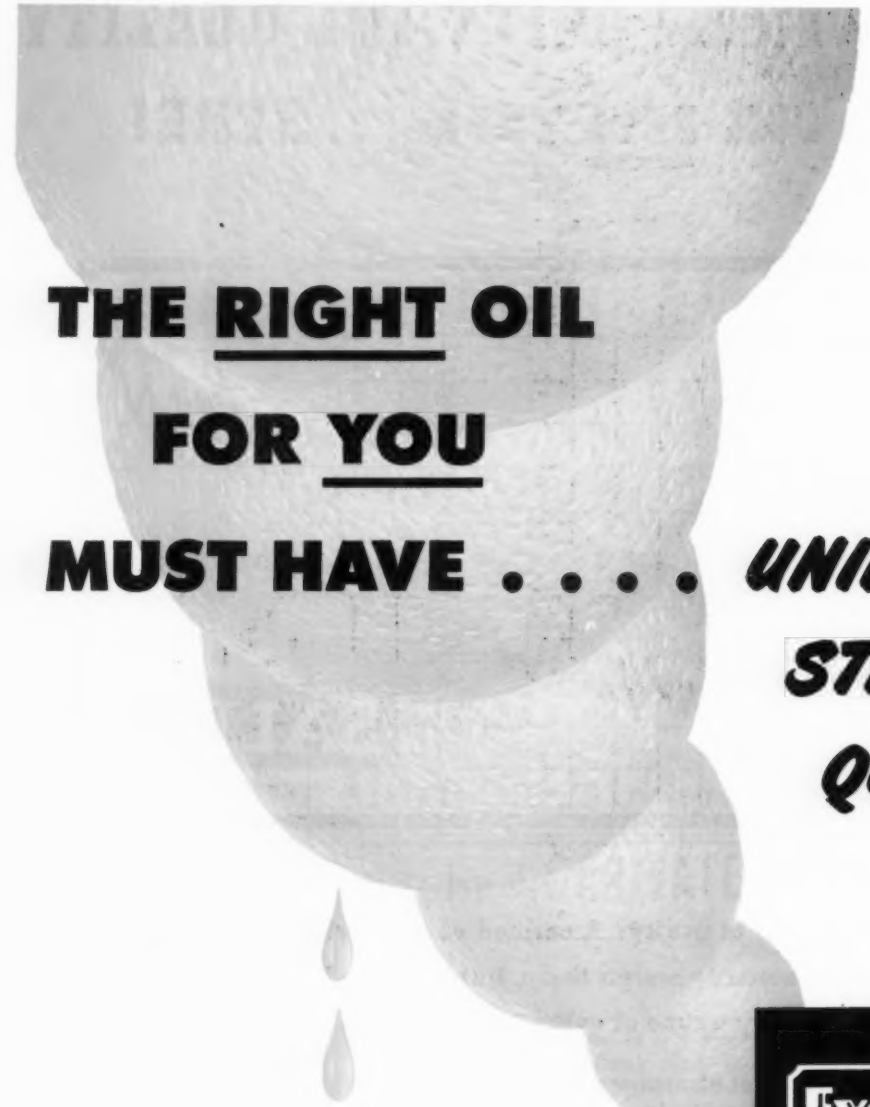

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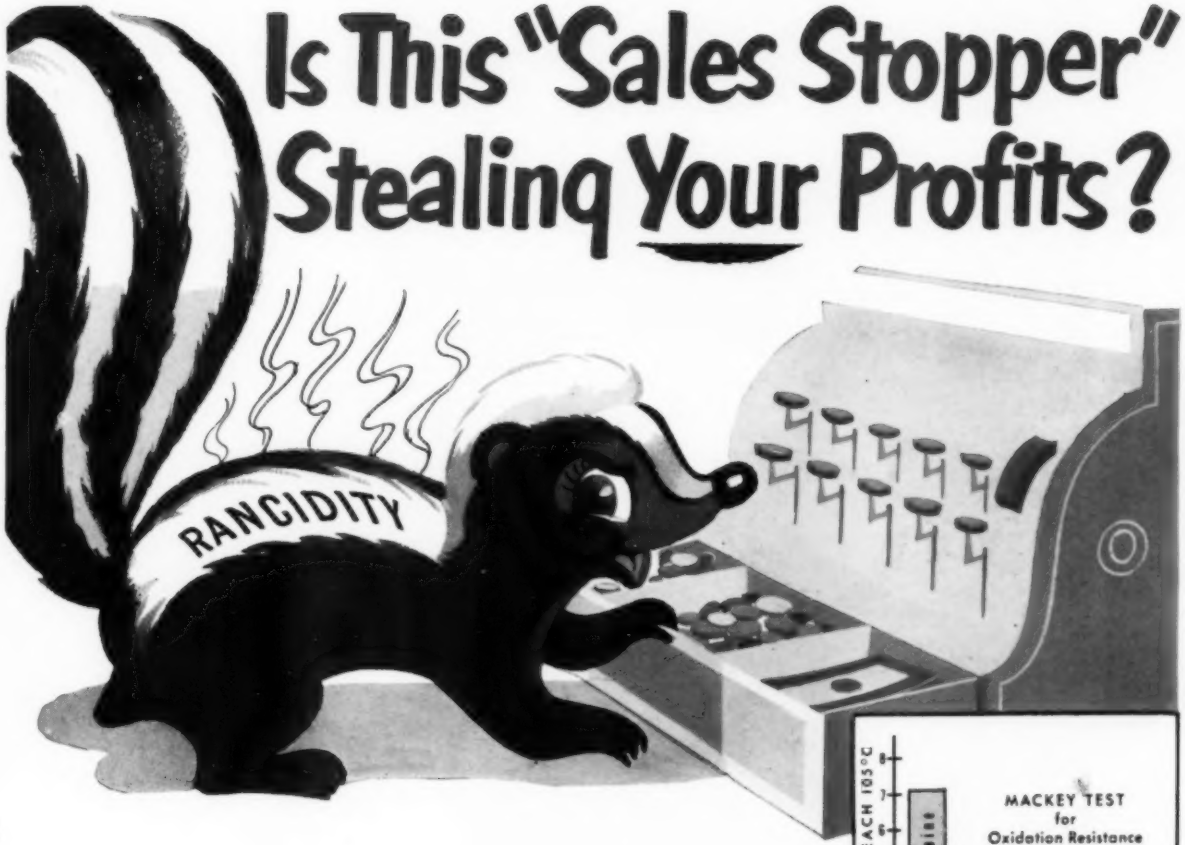


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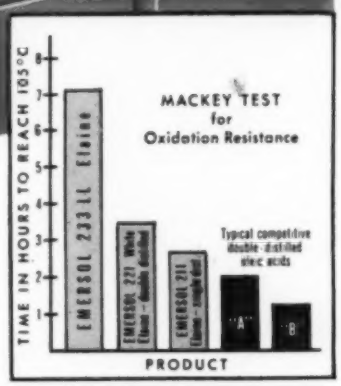


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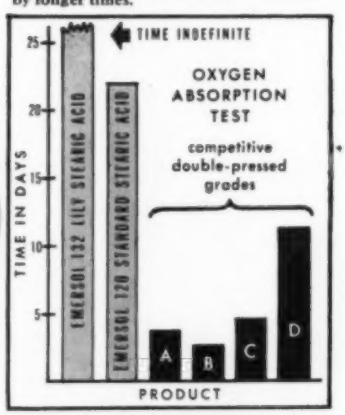


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Kolmar's testing program is continuous from the raw materials to the finished product. Every batch of lipstick made, regardless of size, is not only given the 17 major tests, but all the tests are repeated and repeated until the batch is used up. Only a few of the 17 major tests are listed here, but we shall be glad to reveal Kolmar's complete testing data to interested parties.

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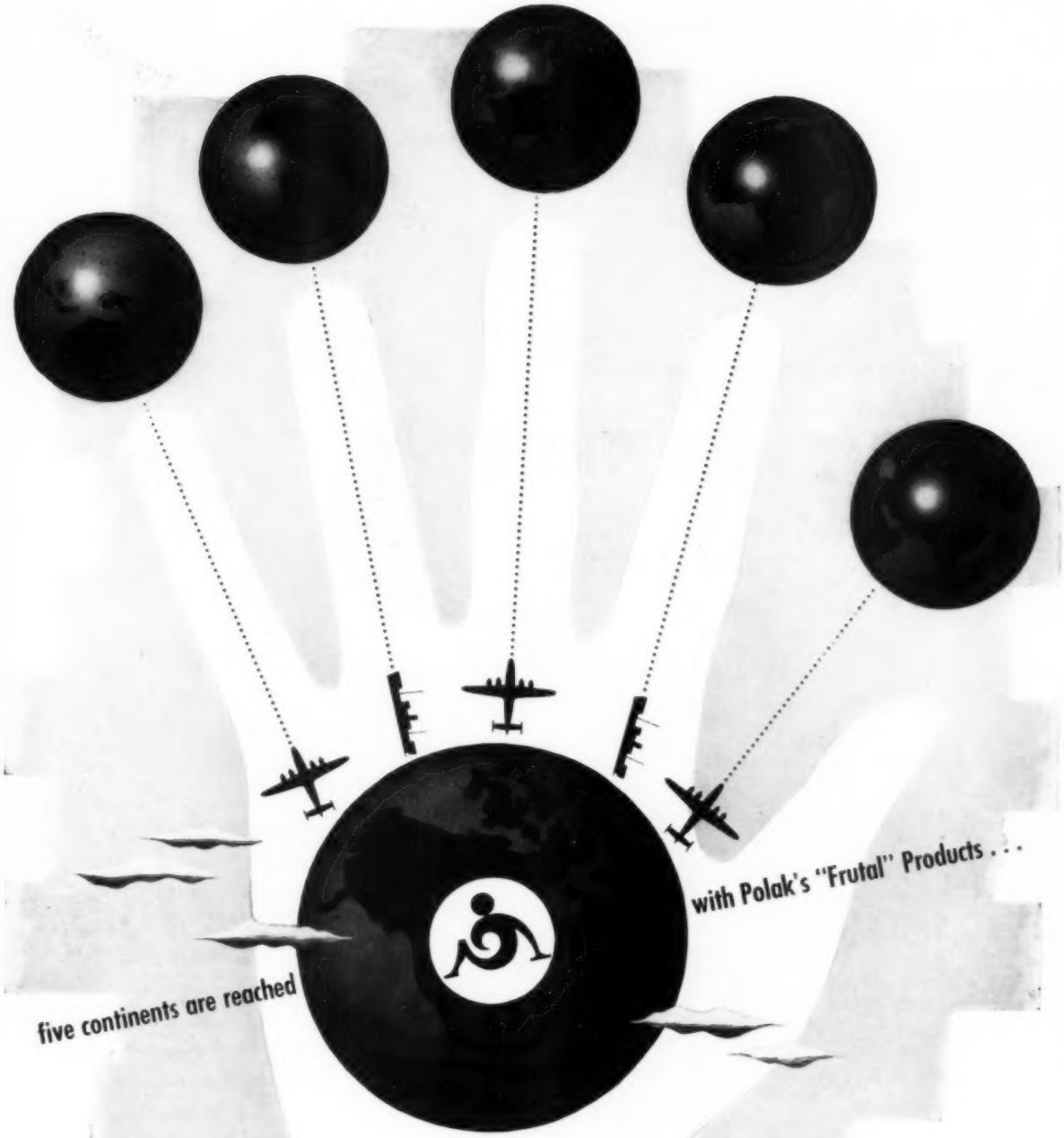


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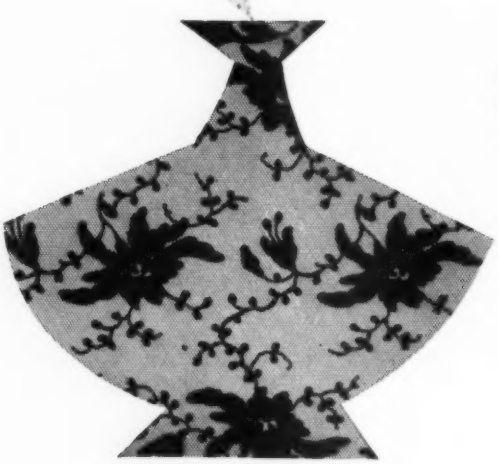

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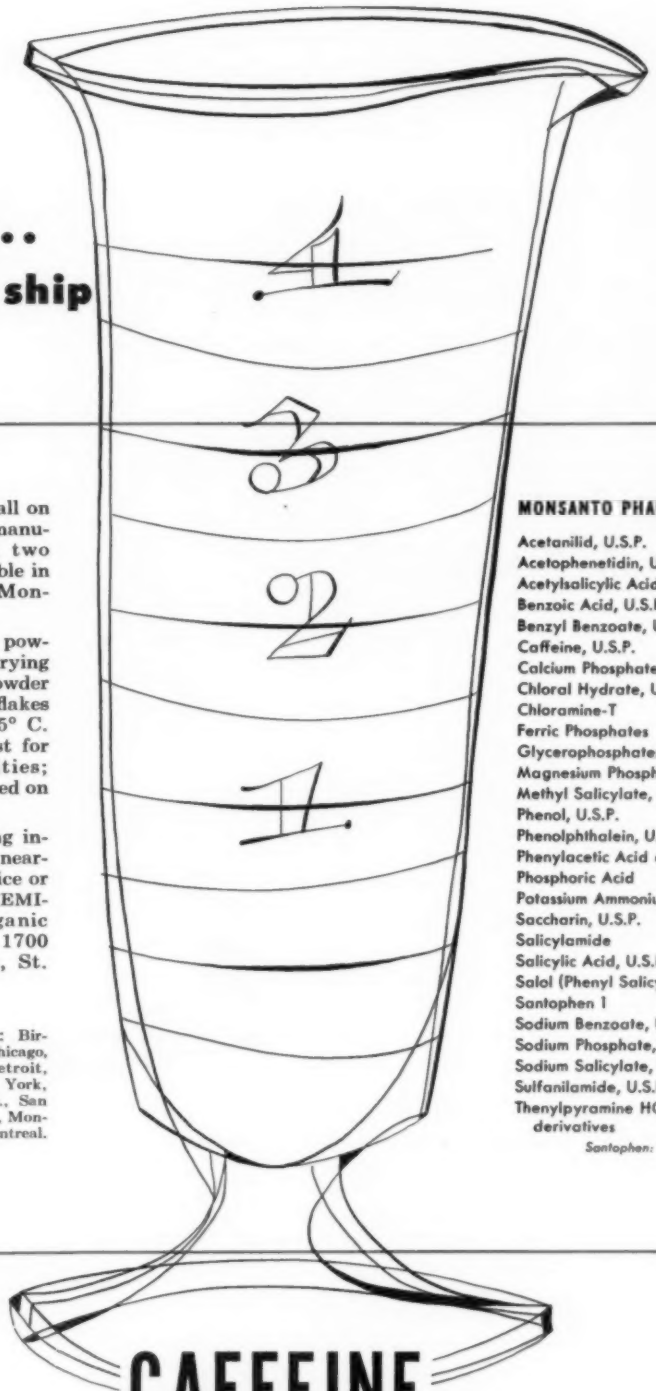

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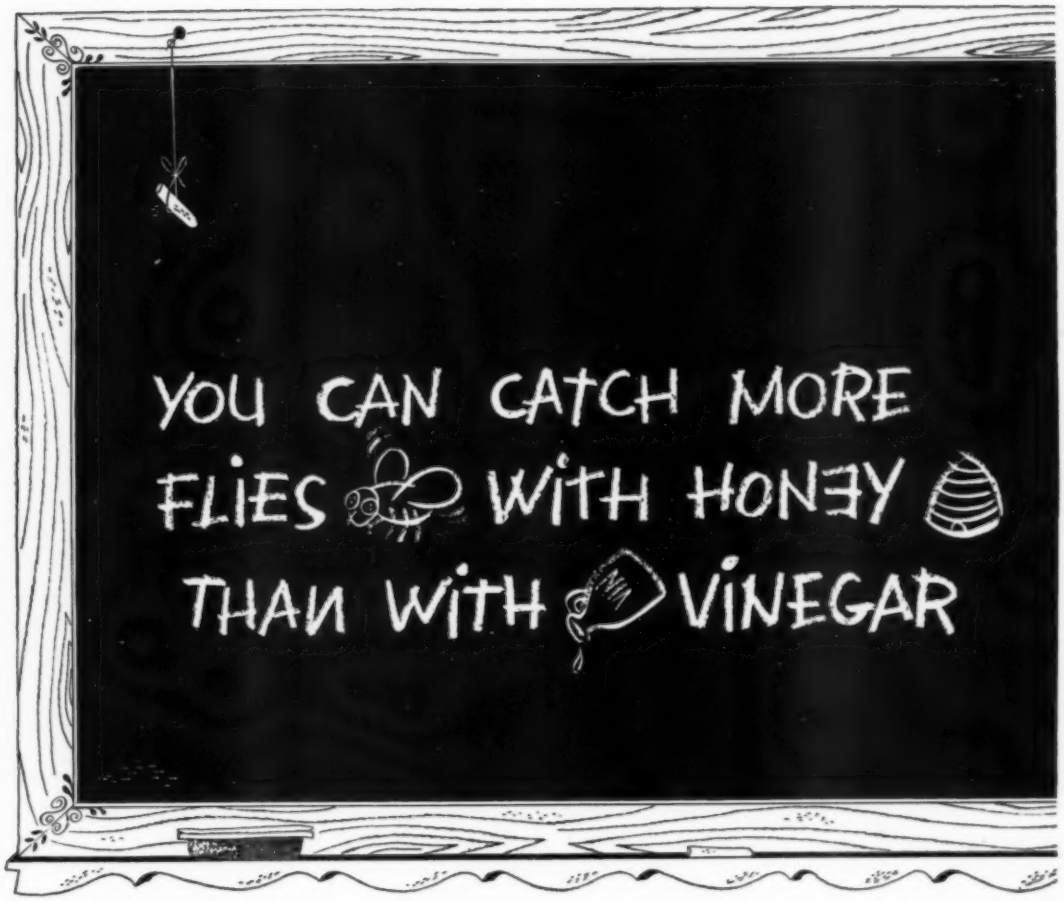


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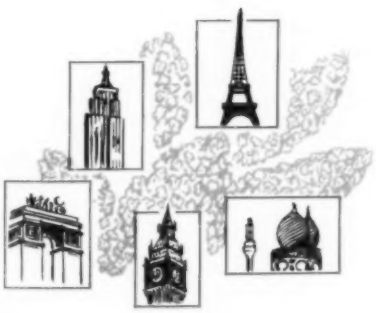

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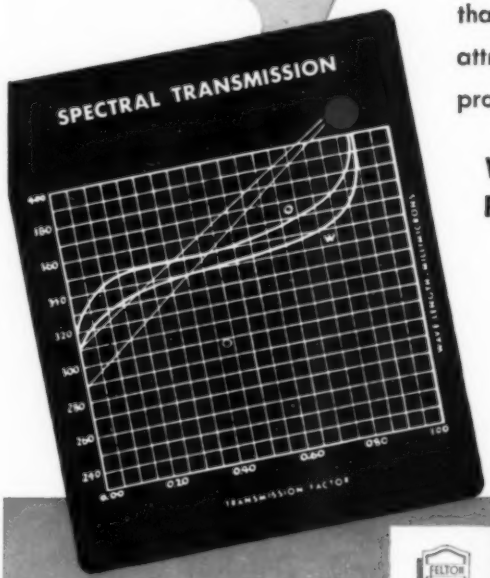


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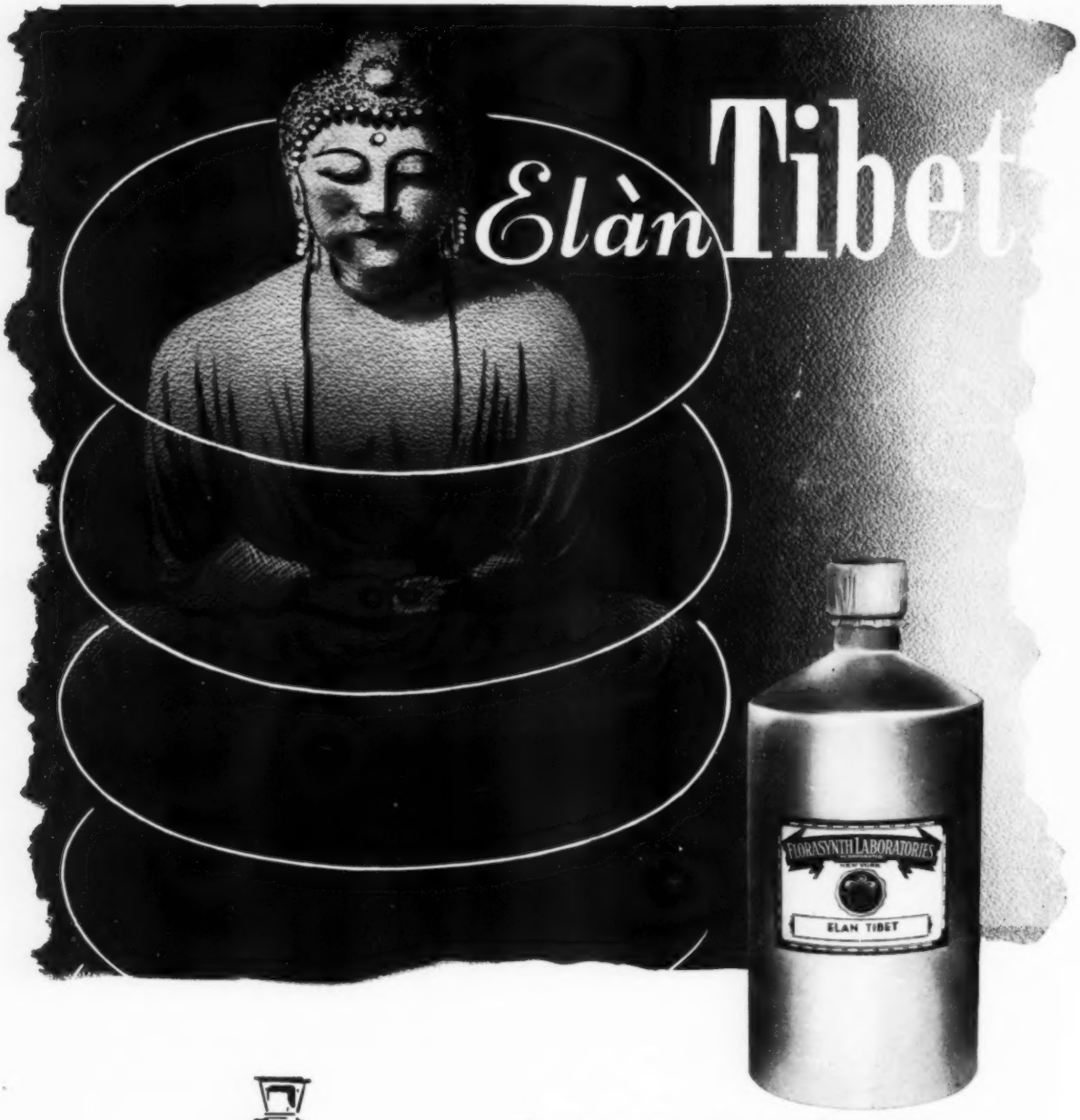


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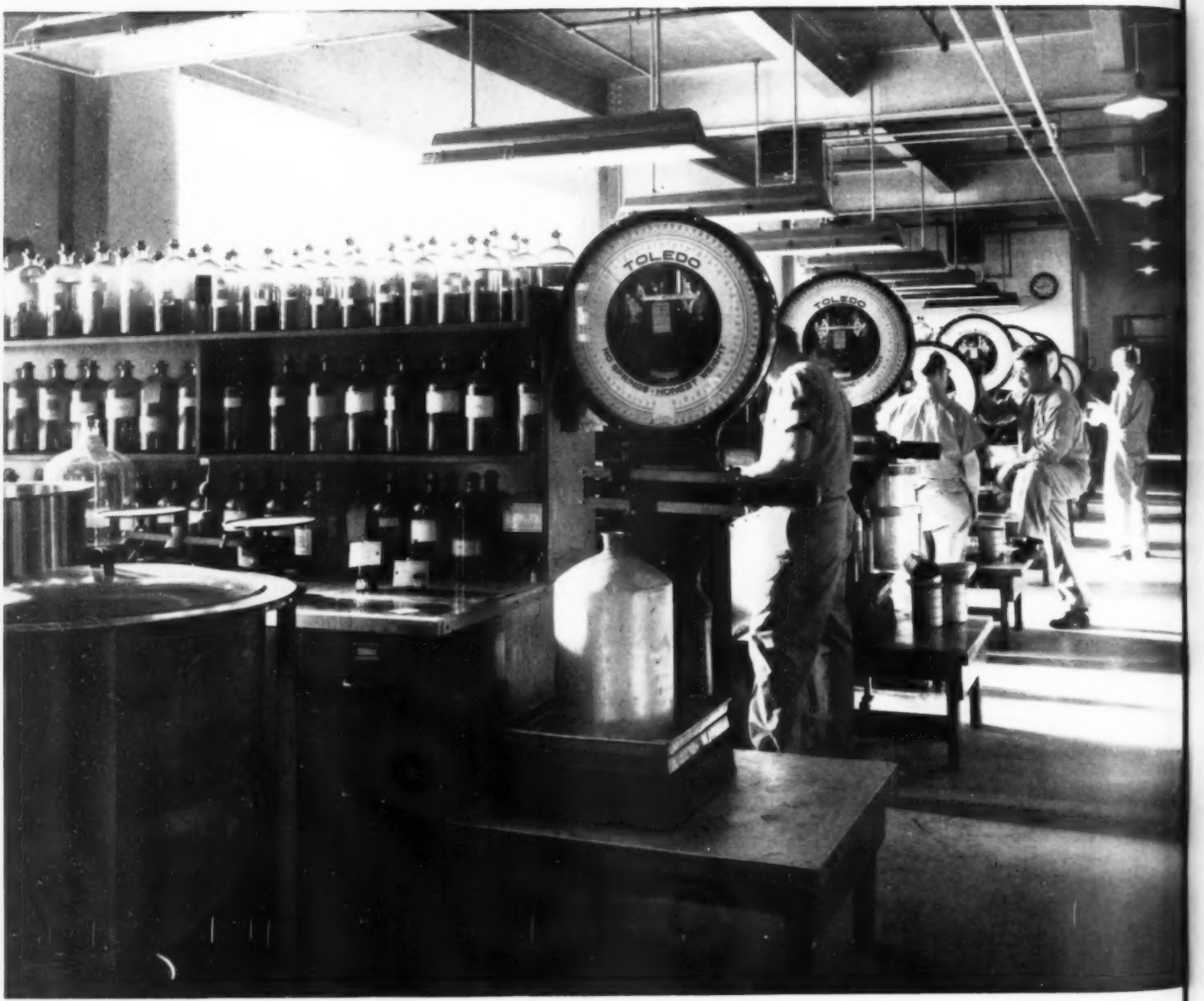
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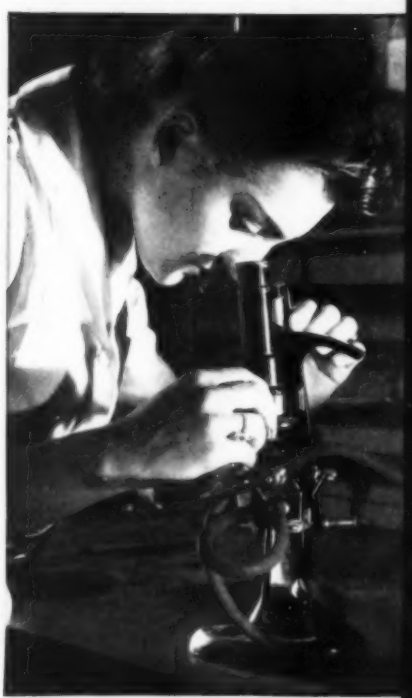

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*Important Properties—Typical Values*

| | Powder | Bulky | Super Bulky |
|---|---|---|---|
| Bulk—Approx. fl. oz./lb. . . . | 45 | 75 | 130 |
| Approx. Particle Size Distribution* | | | |
| less than 5 microns . . . . | 15% | 50% | 65% |
| 5-10 microns . . . . . | 10% | 30% | 15% |
| 10-20 microns . . . . . | 35% | 10% | 15% |
| 20-40 microns . . . . . | 40% | 10% | 5% |
| *Determined by sedimentation methods. | | | |
| Adsorptive power— mg. methylene blue/gram . . . | not less than 100 | not less than 200 | about 150 |
| Acid consuming capacity— cc. N/10 HCl/gram . . . . . | 140-160 | 140-160 | 140-160 |

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# Keeping Posted

## Antibiotic Markets

THE United States currently accounts for about 65 per cent of the world production of penicillin, 75 per cent of the streptomycin, and 95 per cent of the wide-spectrum antibiotics, according to Joseph L. Packard, market research director of Chas. Pfizer & Co. Estimates of the amounts of antibiotics exported from this country are placed at 30 per cent of the penicillin produced in the U. S., slightly over 70 per cent of the streptomycin, and nearly 25 per cent of the wide-spectrum antibiotics.

As to continued expansion of the market Mr. Packard said:

"In the domestic market we have estimated that between 35 and 45 per cent of the patients under a physician's care can be treated with good to excellent results with antibiotics. Recent physician case records suggest that slightly better than 30 per cent of the patients under a physician's care are receiving antibiotics. With the rapidly expanding concepts of dosage and administration, it cannot be assumed that consumption will remain constant. Penicillin is a case in point. While dosage on this product typically is about 300,000 units per day, Dr. Welch in his book on antibiotics states that dosage has been advanced to 100,000,000 units per day with no adverse effects to the patients. The above data consequently suggests the possibility of doubling or tripling domestic antibiotic consumption.

"The real future for antibiotics clearly lies in the export market. U. S. rates of consumption provide the only basis for projecting world antibiotic requirements currently available. There are, of course, a number of inconsistencies in the use of this base. It tends to underestimate long-term demand by treating U. S. consumption as a constant. It also underestimates foreign requirements by assuming comparability in the incidence of diseases between the U. S. and the rest of the world. While some comparability does in fact exist between U. S. and certain other countries located in temperate zones; the disease rates in many of the tropical countries are considerably in excess of U. S. experience. On the other hand, it will be recognized that there is, in practice, a considerable gap between theoretical usage requirements and what the country or area can actually afford to purchase."

Mr. Packard states that few people realize the progress made by the antibiotic industry in the brief period of ten years, pointing out that antibiotic sales in 1951 exceeded the total of all ethical drugs sold in this country in 1940. He also maintains that few people appreciate fully the role antibiotics are playing in animal nutrition as feed extenders and in specialized animal feeding, or that we have to date barely scratched the surface of the world-wide demand for this type of product.

## The New TB Drug

SINCE the first announcements in newspapers of isonicotinic acid hydrazide, produced by Hoffmann-La Roche and Squibb, several other companies have announced that they have been in the act too. Nepera Chemical Company, with a brand name of Pyricidin for the same product, says:

As far back as 1943, pyridine derivatives had been considered sufficiently interesting to be subject to laboratory investigation, and from that time on a series of papers were published from the Nepera laboratories on the tuberculostatic action of drugs in this group."

Schering Corporation, which has given its brand of this chemical the name of Ditubin, says through their director of clinical research, Dr. Edward Henderson:

"Schering has been doing extensive research on antitubercular compounds for several years. Among those we have specially studied is isonicotinic acid hydrazide, a compound first reported as long ago as 1912. Our pharmacological research on the drug is quite complete. Inasmuch as recent published medical reports have aroused intense public interest, we feel it our duty to broaden the clinical study of the drug to the widest limit."

Reilly Tar & Chemical Corporation, Indianapolis, says through their director of research, Dr. Frank E. Cislak:

"Isonicotinic acid has been known to chemists for several decades. It was not until last year, however, that it was made commercially available by Reilly."

The company says further:

"Reilly announced the product to the industry in 1951. Response from research and development organizations in every part of the world made it apparent that the demand would exceed Reilly's ability to produce the material from natural sources. As a result, Reilly is building a plant to produce the raw material synthetically. The first new drug to come out of re-

search on isonicotinic acid hydrazide was Prantal, a product of the Schering Corporation. This drug is used for ulcers. Next came the new anti-tuberculosis drugs announced recently by Hoffmann-La Roche and E. R. Squibb & Sons.

Panray Corp. announced last month that it has started production of the new drug. Panray says that it expects "to begin early trials of the use of this drug in the treatment of leprosy, and plans are under way for investigational work in many parts of the world. Simultaneously, synthesis and screening of other homologues are being carried on." Panray was one of the early producers of PAS which it markets under the brand name of Parasal. The company recently announced plans for introduction of its own brand of cortisone.

Hoffmann-La Roche, Squibb, Nepera, and Schering have all announced plans for free distribution of very large quantities of tablets of the new drug to investigators throughout the country and countries of Latin-America for true evaluation of the product in the treatment of tuberculosis.

### Chlorophyll Cigarette

A CHLOROPHYLL-CONTAINING cigarette is being sold in the New York City area, limited to this market until production can be increased. Named Fairfax, and marketed by the Sterling Tobacco Corporation, these cigarettes are "naturized", according to Cyril Wagner, president of Sterling. Says Mr. Wagner:

"All tobacco contains chlorophyll originally. It grows in the leaf—but when the tobacco is cured the chlorophyll is lost. We simply put it back into Fairfax Cigarettes by a process called 'naturized'. We find it keeps the smoker's mouth and breath clean and fresh. . . . Little did we expect that by the time Fairfax was ready to go into production, chlorophyll would have become a household word."

But the chlorophyll appears to be only a minor part of the Fairfax story. For with each carton is supplied a sheet setting forth the prevention of various diseases resulting from smoking Fairfax. The basis for these claims is that Fairfax contains as its humectant, triethylene glycol. Also it is claimed that the cigarettes contain nothing else but tobacco, all flavoring agents being absent.

Triethylene glycol is the chemical which was the subject of intense investigation a few years ago when it was used in vaporizers as a means of prevention of respiratory diseases. The circular enclosed with Fairfax Cigarettes—which might cause the cigarettes to come within the purview of the drug provisions of the Federal Food, Drug, and Cosmetic Act, sets forth the results of investigations on the prophylactic properties of triethylene glycol vapor, mentioning a long list of diseases including the common cold, influenza, pneumonia, sinusitis, tonsilitis, scarlet fever, measles, whooping cough, meningitis, tuberculosis, mumps, middle ear infection, parrot fever.

An additional claim made for Fairfax Cigarettes is that they do not cause the blood pressure to rise as do other cigarettes. Findings reveal that 91 per cent of those tested disclosed no clinical evidence of peripheral artery constriction as would be evidenced by a rise in blood pressure.

The medical claims for this cigarette make all other claims for cigarettes look childish. Here is a cigarette—if its claims are definitely proven—that will make smoking a most desirable habit for those who wish to keep healthy.

### The Schering Sale

MUCH to the surprise of most people in the industry, Schering Corporation brought a high bid of $29,131,960 when sold by the Alien Property Custodian last March 6. The successful bidder was the Wall Street financial house of Merrill, Lynch, Pierce, Fenner & Beane, which had as associates in the transaction Kidder, Peabody & Co. and Drexel & Co. The purchase was 440,000 shares of common stock of the corporation, and this was immediately split four for one and sold by the syndicate at $17.50 a share, making a total sales price by the financial houses of $30,750,000.

Other bidders were: F. Eberstadt & Co., $26,845,544; Union Securities Corporation, A. G. Becker, Inc., and Ladenburg, Thalman, Inc., $25,581,000; Pabst Brewing Company, $23,400,036; Stockbridge Corporation, $22,327,536; Allen & Co., $21,895,000; National Dairy Products Corporation, $17,666,000; Michigan Chemical Corporation, $14,080,000.

The industry was surprised mainly because the sale brought a price which was almost twice the sales of the company, which totaled $15,444,108 for 1951, with earnings of only $1,374,324. It was figured out by someone that at the same ratio of values, Sterling Drug could be liquidated at one billion dollars.

However, it was explained in some directions that the performance of the company under Government operation would be greatly improved now that the company was in private hands. At any rate, the entire issue of stock was oversold immediately and allocations had to be made.

### Bacitracin Now Over-the-Counter

Bacitracin topical ointment may now be sold over-the-counter, according to a recent ruling by the Food and Drug Administration. This ointment, which has become increasingly popular for skiing abrasions, cuts and other skin disorders, has previously been restricted to prescription sale.

### Chlorophyll Patent

IN OUR Compounder's Corner for February 1952, page 239, under the heading of Chlorophyll Preparations, we published an abstract of an article by G. J. Sperandio which appeared in the Bulletin of the American Society of Hospital Pharmacists. O'Neil Ryan Jr., president of Rystan Company, Mount Vernon, N. Y., writes us as follows:

"We desire to bring the following to your attention. When Professor Sperandio's article was published we immediately addressed a communication to the Bulletin, American Society of Hospital Pharmacists, directing their attention to U. S. Patent 2120667 owned by Rystan Company, Inc. covering compositions containing water soluble chlorophyll derivatives. We simultaneously sent a copy of our communication to Professor Sperandio.

"Our communications to the above expressed our concern at the inferences contained in the article that any pharmacist or others might compound water soluble chlorophyll preparations without infringing our patent."

Since that time, on March 1, 1952 in fact, the Rystan patent was upheld by the Federal District Court in Dallas, Texas in a case brought by Rystan against the Warren-Teed Products Company. Judge William H. Atwell ruled that U. S. Patent No. 2120667, granted June 14, 1938, to Benjamin Gruskin, for "Therapeutic Agent for Use in the Treatment of Infection," is good and valid in law. The Judge also ruled that,

"Defendant . . . has infringed claims 6, 10, and 14 . . . by making and selling products named 'Warren-Teed Chlorophyll Ointment' and 'Warren-Teed C-B-U Ointment.'"

It should be pointed out that the Rystan patent does not cover deodorant applications of chlorophyll. However, Walker Laboratories, also of Mount Vernon, N. Y. has applied for a patent to cover its specially prepared chlorophyllin tablets and capsules.

The Rystan patent relates only to therapeutic uses of water soluble chlorohyll derivatives. Therefore, ointments and any products containing water are thought to be covered by the patent. However, chlorophyll derivatives which are not water soluble do not come under the patent.

### Chlorophyll Tooth Paste

EVIDENTLY there is to be real competition in the chlorophyll tooth paste market. The Pepsodent Division of Lever Brothers has now gone national with its Chlorodent—a product which is licensed under the Rystan patent covering medicinal and dental uses of water-soluble chlorophyll derivatives. But now Colgate has entered the field and is marketing in test areas a chlorophyll tooth paste, claiming both deodorant and therapeutic properties, although Colgate has no license under the Rystan patent. Kolynos is also adding chlorophyll to its tooth paste, and has been making therapeutic as well as deodorant claims.

In addition to these entrants in the market, Bristol-Myers is test marketing Ammoniated Ipana Plus Chlorophyll, and Amm-i-dent has added chlorophyll to its tooth paste. However, both these products claim only deodorant properties for the chlorophyll in their products, basing their dental claims on the ammoniated part of the formula.

It appears that chlorophyll is now the big thing in tooth pastes, with the ammoniated formulas and the penicillin formulas falling behind. However, it is reported that the Rystan patent will not be licensed to anyone other than Pepsodent at the present time (Rystan markets its own chlorophyll tooth paste, Chloresium), and therefore a patent suit or two could easily be the result of the present rush to jump aboard the chlorophyll tooth paste band wagon. The reason for the rush is that Chlorodent has been selling at a terrific rate and the repeat business is said to be very high. However, there is a report that the exclusive patent to Pepsodent will not be exclusive after July 1, when other applications for licenses are to be considered. In the mouth wash field, Pharmacraft holds a license for its product, Oteen.

### Rheinstrom Leaves Hirestra

ROBERT I. Rheinstrom, founder of Hirestra Laboratories, makers of Endocreme—the first estrogenic cosmetic cream, has severed connections with that enterprise. Some years ago, Mr. Rheinstrom sold his interest in the firm which he founded, but continued his association as consultant to the new owners. On March 10 he resigned from the firm for the purpose of opening his own office so that he would be free to act as consultant to other firms and to engage in such activities as might strike his fancy. Upon his resignation he went on a vacation with his wife. But upon his return he will go about opening his office and be ready to go to work. Mr. Rheinstrom is not happy unless he is busy.

### Another Drug Trade Dinner

THE twenty-sixth annual dinner of the Drug, Chemical & Allied Trades Section of the New York Board of Trade, held at the Waldorf-Astoria Hotel last month, set a new record for attendance. The number of men at this function totaled 2,405. The number of tickets sold, and the number of places provided by the hotel totaled 2,480, but the attendance was cut to the lower figure by illness and other reasons for non-attendance by 75 people. Where the hotel finds space to accommodate an increasing number of guests we do not know, but there must be a limit to the capacity of the Waldorf. Reservations for the 27th annual dinner to be held next year started to be made immediately after this year's dinner was over. It seems that the popularity of this function continues to increase and neither the present high price of the tickets nor the increased attendance which results in increased dilution of the value of those present to any particular participant, dampens the enthusiasm with which this dinner is anticipated.

### Pharmaceuticals in India

PRIME Minister Nehru joined American and Indian businessmen in ceremonies held last month at Bulsar, India, opening India's first dyestuffs and pharmaceutical plant. The plant has been built with technical help from the American Cyanamid Co. which has a 10 per cent interest in the enterprise, the balance of the stock being held by Indian investors. S. C. Moody, Cyanamid vice-president, present at the ceremonies, said that Indian chemists who have been taking technical training at Cyanamid factories preparatory to taking control of the new enterprise, known as Atul Products, Ltd., have "demonstrated that type of ingenuity and enthusiasm which is so necessary to the success of any new undertaking." Mr. Moody spoke of the late Dr. Subbarow, whose work at Lederle Laboratories had contributed so importantly to the discovery of aureomycin. "Let the spirit of this great son of India inspire you," he said, "as his spirit still inspires his associates in my country."

Aureomycin for application in nearly 100 diseases is to be produced at this plant. This product is now the subject of extensive medical research throughout India. Free distribution has been made to doctors and clinics of hundreds of thousands of 250 mg. capsules for investigation into many diseases including cholera, amoebic dysentery, rickettsial pox, typhus, peritonitis, and various fevers and infections. Folic acid, peculiarly suited to help India's health problem because the basic enemy of the physician in India is frequently malnutrition, is being made at the new plant.

Close by the plant a 30,000 square-foot pharmaceutical manufacturing building is being erected which will be 100 per cent air-conditioned. This will house an Accogel encapsulating machine for making soft-shell capsules from liquid gelatine at a rate of up to one million capsules per 24-hour day. Every batch of drugs produced will be placed in quarantine while a sample is sent to America for assay as to potency, purity, safety, etc. Also crudes and intermediates imported by Atul will come from the United States.

Indian investors, who own 90 per cent of the stock of Atul, already have realized a handsome profit. The value of the shares rose 150 per cent before production started.

## Cosmetic Chemists Program

THE SOCIETY of Cosmetic Chemists has arranged its program for its Spring Meeting to be held at the Hotel Biltmore, New York, on May 15. The morning session will open with a paper on the toxicity of sodium perborate when used as a neutralizer in permanent waving, by Dr. M. G. Mulinos, New York Medical College. This will be followed by a talk on the evaluation of sensory reactions with numbers instead of adjectives, by Prof. J. M. Juran, New York University; some new chemicals in cosmetics, by C. Pacifico, Wyandotte Chemical Corp.; and a new method of scar removal (with 15-minute movie), by Dr. A. Kurtin.

During the afternoon session, A. Meshbane, Tracerlab, Inc., will discuss the use of tracers and their application to cosmetic research; Dr. P. Flesch, School of Medicine, University of Pennsylvania, will present a study on experimental loss of hair, due to contact with certain chemicals, and its regeneration; W. E. Botwright, Rohm & Haas Company, will discuss the use of quaternary ammonium compounds and their use in cosmetics from a germicidal and bacteriostatic viewpoint.

## Dr. Fisk Retiring

DR. FRANK B. FISK, of the Pittman-Moore Company, who is retiring in August after 39 years of service, was the subject of a resolution adopted by the Combined Pharmaceutical Contact Committee at its meeting held in Washington, D. C., on March 21. Pointing out that Dr. Fisk served the Contact Committee "for more than a quarter of a century, most of which time as its secretary, with unusual ability, profound distinction, and a devotion beyond the call of duty," the Committee resolved "that we hereby express to Doctor Fisk our sincere thanks to him for these valuable services to our Committee, and that we extend to him our best wishes for a long, healthful retirement-vacation that will permit him to return to us from time to time, in order that we may not only continue to have the pleasure of his association, but the benefit of his advice and counsel."

## Not Subject to Tax

PARKER Herbex Corporation informs us that Herbex Special Pink Ointment is no longer subject to the 20 per cent Federal Excise Tax. The opinion dated March 17, reads:

"The labels submitted have been given further consideration and it is the opinion of this office that under the claims and recommendations appearing therein, Herbex Special Pink Hair and Scalp Ointment is intended for the medicinal treatment of infectious dandruff and for itchy scalp. It is therefore held that the product in question is not a toilet preparation or similar substance used or intended to be used or applied for toilet purposes within the meaning of Section 2402 of the Code. . . ."

## Vitamin Ad Claims Banned

IN FTC STIPULATION No. 8231, the manufacturer of a vitamin preparation has agreed to stop claiming that his product will: Have a beneficial effect on the blood or red blood corpuscles, except in cases of simple iron deficiency anemia; correct or relieve a condition of lassitude or otherwise have a beneficial effect thereon, except when the lassitude is due to a deficiency of iron and vitamin $B_1$; have a beneficial effect on indigestion, except when due to a deficiency of vitamin $B_1$; have a beneficial effect on upset stomach, except that condition when it is caused by gas; re-energize or rebuild the nerves, except where a deficiency of vitamin $B_1$ exists.

## Ear Products Claims Stopped

THE FTC has issued a complaint against the Elmo Co., Davenport, Iowa, charging false advertising claims for medicinal preparations and an ear-vibrator device sold as a "home treatment" for deafness. The products are Elmo Ear Oil No. 1, Elmo Nasal Cleanser No. 2, Elmo Throat Gargle No. 3, Elmo Vapor Inhaler No. 4, Elmo Massage Ointment No. 5, Elmo Nasal Ointment No. 6, Elmo No. 8 Ear-Vibrator, and Elmo Recharge Liquid No. 9. The complaint charges that, contrary to the company's advertising claims, the Elmo preparations will have no beneficial value in cases of head and ear noises, deafness and impaired hearing except when caused by catarrh. The complaint says:

"When deafness or impaired hearing, together with ear or head noises, result from discharging catarrh, the use of respondent's preparations, as directed or otherwise, will have no beneficial effect in the treatment of said conditions in excess of temporarily relieving the catarrhal condition and the resulting deafness or impaired hearing and ear and head noises. In many cases of deafness or impaired hearing and head and ear noises resulting from so-called dry catarrh, the benefits derived from the use of said preparations, as directed or otherwise, are limited to the softening of the dried exudates. Respondent's treatment would not usually result in the removal of these exudates and, until removed by other means, the deafness or impaired hearing and ear and head noises due to these exudates would be expected to continue. The use of Elmo No. 8 Ear-Vibrator, as directed or otherwise, would have no beneficial effect in the treatment of deafness or impaired hearing or of ear or head noises due to catarrh."

Other claims alleged to be false and deceptive are that respondent's method of treatment, including the use of the preparations and the ear-vibrator, is based upon the findings of accepted medical authorities specializing in the treatment of eye, ear, nose and throat; that catarrh is the most common cause of deafness; and that the preparations and the ear-vibrator may be used safely.

## F.T.C. Order Against Soaps and Cosmetics

FTC Order No. 5411 has been issued against advertising for several soaps and cosmetics in which the manufacturer claimed that they did not contain allergins or irritants. The Commission found:

"All these cosmetics and the soap contain both allergens and irritants. Among the ingredients in the products are perfume, zinc oxide, castor oil, cholesterol, aluminum sulfocarbolates, depollinized beeswax, beeswax, cocoa butter, and zinc stearate, which are known to have caused allergic reactions, including skin irritations in some people."

The manufacturer uses the Rx symbol in his advertising, and although the Commission did not request that this symbol be discontinued, it stated:

"The foregoing is not to be taken as an indication or holding by the Commission that the use of the Rx symbol is not misleading or deceptive regardless of the circumstances; it relates only to its lack of deceptiveness in the manner in the complaint by which the Commission is bound."

## F.T.C. Rules Against Hair Experts

AN FTC HEARING examiner's initial decision prohibits Hair Experts, Inc., Detroit, from representing that the various cosmetic and medicinal preparations they sell will rejuvenate the hair-growing functions of the scalp and develop the "fuzz" on the scalp into normal hair. Hair Experts, Inc. operates branch offices and retail stores in New York, Brooklyn, Philadelphia, Newark, N. J., Jamaica, L. I., Baltimore, Boston, and Pittsburgh where they sell their preparations and give hair and scalp treatments. They also sell home treatment kits, solicit business by questionnaires, and employ agents who recommend treatment at the branch offices or the purchase of the home treatment kits.

Among claims prohibited by the order are:

That the use of the preparations, methods or treatments by the respondents' operators in their various places of business, and by purchasers of their preparations in their homes, will cause hair to grow when growth has ceased and resulted in thin hair or partial baldness.

That the preparations will prevent baldness, grow hair on bald heads and enable an individual to maintain thick growth of hair for life; will reopen clogged hair passages in the scalp, energize hair papillae, make sluggish blood circulation in the scalp normal, eliminate excessive falling hair, loose dandruff, itching and dryness and oiliness of the hair and scalp.

That the respondents' preparations, treatments and methods are new, scientific discoveries in the treatment of hair and scalp disorders.

The respondents use the word Trichologists to designate certain of their operators or employees. The order prohibits use of this word or of any similar term which directly or by implication may tend to convey the impression that the persons so designated have had comptent training in dermatology or any other branch of medicine having to do with the diagnosis and treatment of scalp disorders affecting the hair.

## Vitamin-Mineral Ad Claims Stopped

IN FTC STIPULATION No. 8235, which relates to advertising of a vitamin-mineral preparation, the following paragraph appears:

"The copartners agreed to stop representing the product will: have any beneficial effect in cases of weak body tissues, tissue weakness, loss of strength, loss of vitality, low vitality, nervousness, achiness, a rundown condition, depression, inability to eat or sleep, headaches, aches or pains, indigestion, bloating, gas on the stomach, stomach disorders, or diseases, or pain after eating, except when clearly and conspicuously limited to such beneficial effect as it may afford when those conditions are due to a deficiency of iron, vitamin $B_1$ or vitamin $B_2$."

## Cosmetic Claims Prohibited

GENE Salee, Inc., Hollywood, Calif., has entered into Stipulation No. 8243 with the FTC. The company agrees to discontinue representing that their cosmetics, Liv and Scrub, either alone or in combination, serve as a complexion aid or overcome excess oiliness; fade or bleach scars and pits; or are effective in correcting conditions described as pitted skin, pimples, blemishes, teen-age complexion or clogged pores. The company also agrees to stop representing that Liv is nonallergic.

## F.T.C. Order Against Knox Products

AN FTC HEARING examiner's initial decision prohibits certain claims for two products of the Knox Co., Los Angeles. The company is ordered to discontinue advertising that Chinaroid constitutes a competent or adequate treatment for piles or hemorrhoids or will be of any benefit to the underlying causes of such conditions; or that the preparation could exert any influence upon the severity or duration of piles or hemorrhoids, beyond that of an astringent and local anesthetic in affording temporary relief to such symptoms as pain, itching, burning, and irritation which accompany simple, uncomplicated cases of piles or hemorrhoids.

Claims for the other preparation, Romund, ordered stopped, are:

That Romind constitutes an adequate or competent treatment for arthritis, rheumatism, swollen joints, neuritis, neuralgia, sciatica, or lumbago, or will permanently relieve pain accompanying such conditions; or that it possesses any therapeutic value in these conditions in excess of such temporary and partial relief of minor pains and fever as may be afforded by its analgesic and antipyretic action.

That it constitutes an effective remedy or competent treatment for soreness in excess of the temporary symptomatic relief due to its analgesic action.

That it is an effective remedy or competent treatment for stiff muscles or will help in any manner to remove uric acid from the system.

That it will serve to cleanse the body or blood of waste, poisons, or acids, or otherwise stimulate the cleansing action of the kidneys or their activities or exert any beneficial effect upon the underlying causes of arthritis or kindred ailments.

That the ingredients constitute a new formula or a new kind of treatment.

## F.T.C. Bans Veterinary Claims

THE FTC accepted a stipulation with regard to the advertising of a veterinary preparation in which the manufacturer agrees to "stop claiming that the mineral in the product are supplied in proper proportion; that the product assures healthy or well fed livestock; that it prevents a calcium or phosphorous deficiency in livestock or is effective in the prevention or treatment of ailments caused by such deficiency."

The manufacturer further agrees to "discontinue describing or referring to feeding trials or tests by agricultural colleges, experimental stations or other institutions or organizations in such a manner as to import or imply, contrary to fact, that results comparable to favorable results obtained in such feeding trials or tests will also be realized through use of the product."

## Hair Preparation Ad Claims Banned

IN STIPULATION No. 8237, the Shontex Co., Santa Monica, Calif., agrees to stop representing that the product sold under the names, Shontex Conditioning Formula and Shontex Conditioner, has any effect in increasing the duration of a hair wave or in bringing natural oil into the hair. Also discontinued are claims that the product corrects, prevents or overcomes broken or split hair ends, falling hair or dandruff, or that it has any beneficial effect to such extent as it may relieve hair dryness and brittleness and aid in dissolving dandruff scales.

# What's Happening to Perfume

*by Frazer V. Sinclair*

THE Perfume Industry is going through a transition. Most of the people in this industry know exactly what is happening when it happens. But not too many are consciously aware that the events in this industry are forming a pattern. Standing alone, any one of these events may have no particular significance. Together, they form a pattern of fundamental change or transition which will deeply alter the character, the viewpoint and the kind of companies which make the perfume industry.

It is because of this concentration on the current event, rather than on the pattern of events, that so many in the perfume business are striving so mightily to maintain the status quo or, as in the case of solid perfume or cologne, resist the new product because of a conviction that it is a passing novelty.

The transition which is taking place in perfume is the change from a market of a selected, favored few to a market of Mrs. and Miss Anybody.

The perfume business, historically, has used words such as "rare" and "precious" on every possible occasion. The people in this industry have moved in a rarefied atmosphere of their own creation. Their selling has been restrained and subtle, as if to intimate that visible evidence of selling would be vulgar. The price they have placed upon their product and the strict selection of a favored store allowed to sell it, reflected this mental attitude.

The shocked surprise which greeted the results of a psychological survey of American women's attitude toward perfume reflects the industry's absorption in their own sales story. As Gimbel would say, no one—but no one has been more thoroughly sold by the theme of perfume advertising than the perfumers themselves.

This psychological survey made it very clear that perfume advertising, trained over-the-counter perfume selling and perfume presentations had succeeded only too well. Women (and men) are thoroughly convinced that perfume is rare and precious. So thoroughly convinced, that women seldom buy perfume themselves, wait until Christmas for a gift and, having received this precious gift, use it sparingly drop by drop on special occasions.

This startling situation of an industry spending millions of dollars to talk itself out of a market, or rather to limit itself to the diminishing pent-house market, has not all been wasted. Because it is perfectly evident, in a market sense, that a great majority of American women love perfume, want to buy it themselves, want to use it every day and want no more complexes or frustration in its use than they have for a lipstick.

This is not too broad or too extravagant a statement.

We had a war experience that left no doubt in anyone's mind that perfume has long been a suppressed and largely unobtainable desire for millions of American women. In the last few years we have seen a fashion magazine of limited circulation produce eighty thousand replies from one issue, each accompanied by a dollar,

for an offer of a small package of assorted perfumes. At the retail counter during these few years, we have seen a series of promotions, each essentially based upon a device to bring perfume into an economic buying range, produce substantially increased sales. It seems evident that whenever American women have been given the opportunity to buy perfume without a sense of extravagance, nearly everyone buys perfume.

This pressure of the dollar limit on willingness to buy combined with a deep desire for fragrance, has lead to a continual succession of changes in the perfume business—a transition that is becoming every day more evident.

To all intents and purposes the American perfume industry came into existance during the first world war. It was a small industry, imports still predominated, but American manufacturing had its real start at this time. In the ten succeeding years this industry grew substantially and, together with increasing imports became, by 1930, a substantial part of the entire cosmetic industry.

The year 1930 checked this growing volume, as it did in all business. But the effect on perfume was substantially more severe than on other cosmetic products. The war acquired desire for fragrance by many women who had previously not used perfume was still there—the money wasn't.

This year 1930 marked also the beginning of the "floral cologne" and the great cologne era. It was a misuse of the word cologne, but the word gave an authentic ring to a device to bring fragrance to a price level that would continue and even expand fragrance sales during the difficult, critical fifteen years that followed.

The second world war interrupted the cologne era, and again gave overwhelming evidence of the universal desire for perfume. But it also made clear that perfume sales thrive only in what economists call an economy of opulence.

From 1945 to this date we have seen not only the revival of the cologne era but an accelerated and diverse experimentation to bring fragrance within the means of every American woman.

These diverse experiments, in review, are impressive. They include cologne, particularly the significant two and one ounce size, the purse flacon, the sampler kit, solid perfume and cologne and now the cream and lotion sachet.

The significance of the popular appeal of these fragrance products and the percentage of the volume which they contribute to the fragrance industry can hardly be ignored. Their pattern leads us to the inescapable conclusion that the industry has already undergone drastic changes in its thinking, in its operations and in its market concept.

It might be properly said that there is no longer a perfume industry but that we have a dynamically expanding fragrance industry. It might be said also that the market of the industry is no longer the four million women who buy or receive perfume but the forty million women who use face powder, lipstick, deodorants, shampoos, creams, etc. It can be said too that the fragrance people no longer sit in fretful impatience waiting for Christmas but have now set their sights on direct purchases for use in every month.

That this is a worthwhile objective can be measured by a comparison of the present total fragrance volume at seventy million dollars wholesale compared to a potential which is certainly no less than two hundred million dollars.

The industry still has its problems and they are serious ones. Among these are traditionalism, both among producers and certain elements in the retail trade. Far more serious is the effect of price on the mental attitude of the woman toward quality. We are only a few years from the time when the only device the perfumer had to compromise between the price-quality balance and the ability to buy was the sale of drams in the retail store. Yet what incalculable harm may dram size sales have done to perfume volume. It would be hard to think of anything that could more vividly emphasize in a woman's mind the expensive luxury of perfume than this tiny container, or persuade her more thoroughly to save perfume for a special occasion.

The industry is still faced with this price—quality—prestige complex. American women still set a price for perfume below which perfume loses its appeal and attraction. Yet that price eliminates all but three or four millon American women as customers and restricts perfume to an eighty per cent gift market.

In the same way Cologne has its price minimum as a quality determination and although Cologne greatly expands the fragrance market to a probable twenty million women, this still leaves an untouched fifty per cent market.

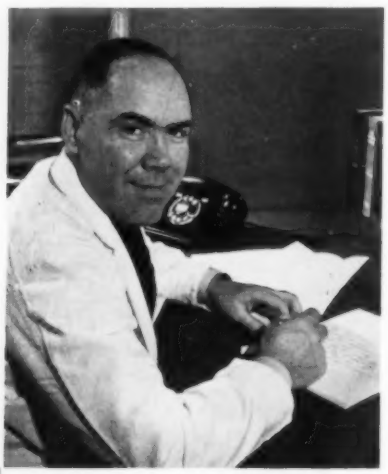
There seem to be few price complexes for solid cologne and solid perfume. It may be that these products, together with cream and liquid cream sachets will break the price barriers and open the way to the ultimate objective of fragrance sales—the lipstick market.

The ultimate goal of the fragrance industry can sensibly be set at a market of forty-eight million women and a volume of two hundred million dollars. The manufacturing industry that will attain this market and volume is already in the process of vigorous functional changes. This does not mean that certain perfume companies who have attained an enviable reputation and who operate within well defined limits in distribution, advertising and public clientele will abandon their position as perfumers. It would be a serious blow to industry hopes if this kind of traditionalism were lost and if the prestige of these famous names were not a part of the intricate pattern of the industry. It does mean that many companies who have struggled too long in an overcrowded room are now breaking down the walls with a vision of a great expanding market and a way to reach it.

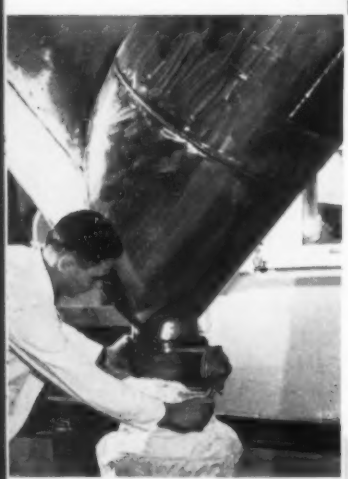
Donald J. Vink, superintendent of new Parke, Davis Chloromycetin plant.

# Antibiotic Synthesis

Dramatic proof of the change which has taken place within recent years in pharmaceutical manufacturing, and the marked influence of the discovery of antibiotics upon this industry, is furnished by completion by Parke, Davis & Co. of a new plant for production of its specialty antibiotic, Chloromycetin. Originally produced, as are all other antibiotics, by fermentation, a chemical synthesis for the product was discovered. Now a plant of 19 buildings on 28 acres, containing more than a million dollars worth of special equipment has been placed in operation at Holland, Michigan, for the production of this one pharmaceutical product which is marketed only by this one manufacturer.



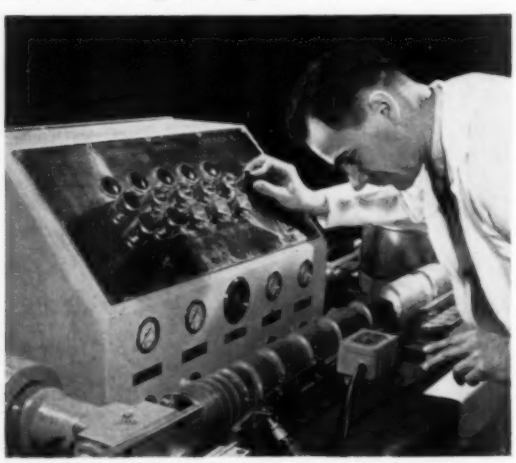
Winthrop F. Roser, manager of chemical manufacturing department. He has been with Parke, Davis since 1933.



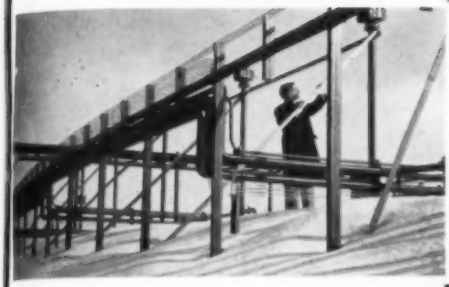
Twin-shell dry blender preparing Chloromycetin for capsuling operations.

Wastes are emptied into these storage tanks, then pumped into 1600-ft. well to eliminate surface water pollution.

Picture shows bottles passing through automatic labeling, cartoning machine.

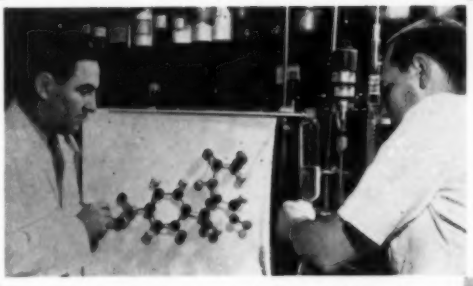


Master control panel for all services in plant, such as steam, water, air.

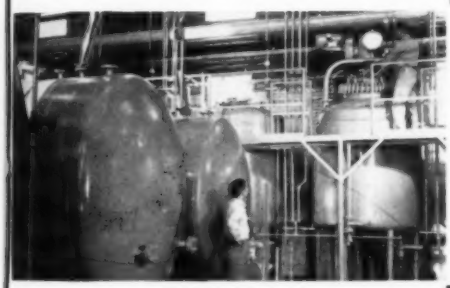


Chemical solvents are stored in this 124,000-gallon outdoor tank farm and piped to plant. More than four miles of tubing are used to connect tanks with measuring guages in the plant.

Filter press, weighing 25,000 pounds, which will produce the Chloromycetin.

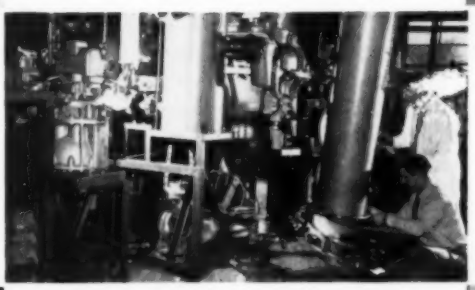


Dr. Loren M. Long, left, and Harvey Troutman with model showing atomic structure of Chloromycetin molecule.



Huge storage tanks and vacuum stills which play important part in process.

Refrigeration and ice-making equipment. Compressors in foreground are for cooling water; others, for ice.

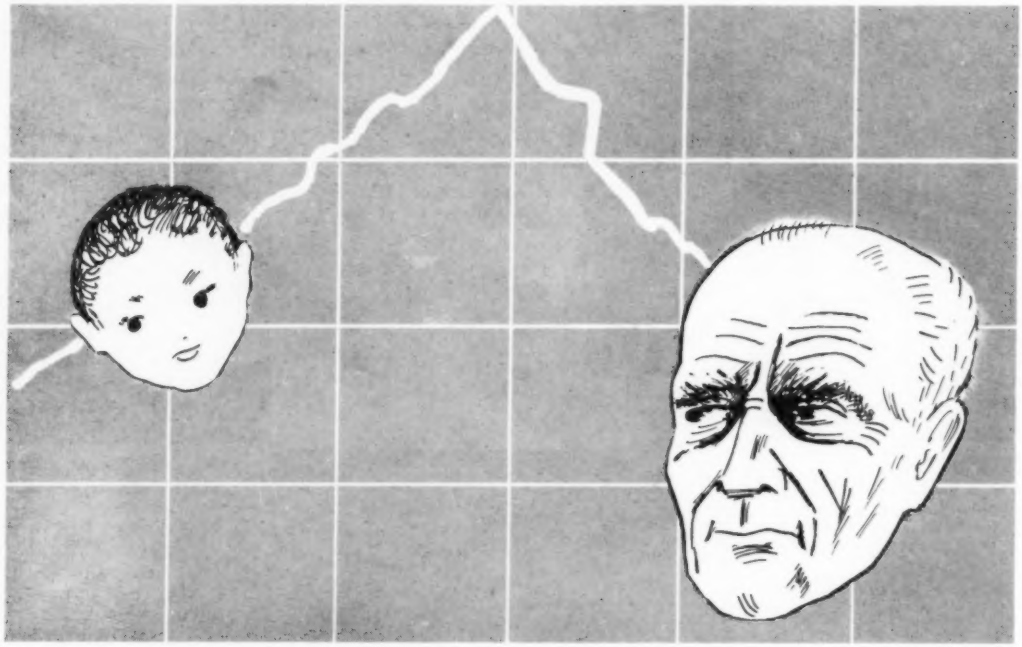


Initial 3-story reactor tanks. Flaked ice, made by machine above tanks, is put into reactor to control temperature; 9 tons of ice is used hourly.

Control chemist & equipment operator make careful inspections of process.

Large pump house which supplies water for plant. Water comes from nearby lake and from forty different wells.

Packaging and labeling Chloromycetin for shipment throughout the world.



# Factors Governing

**Part II**

IN AN EARLIER discussion[9] the status of the present life span was dwelled upon. Abnormal nutrition was advanced as the prime-mover of those factors responsible for our present limits. Obesity, a form of malnutrition, was dissected in some detail thereby disclosing its role as a spawning ground for vast degenerative pathology which is directly instrumental in immobilizing any advance in the present life term. Concomitant with this action is the economic burden of chronic disease and invalidism. Winslow[10] states, "the cost of ill health to the United States is 38 billion dollars annually. Dr. R. M. Hilliard of the New York City Welfare Council points out that the already tremendous cost of chronic invalidism will more than double in the next thirty years unless the trend is reversed. This, briefly, is the price we shall have to pay for the type of longevity we now know.

The relationship between nutrition and our second greatest degenerative killer, cancer, cannot yet be brought into sharp focus; through the fog of uncertainty, doubts and alternatives, there are emerging forms of sinister implications. Of extreme interest and suspicion are the sharp differentials between cancer mortality rates in various geographic areas. We shall quote a few outstanding examples of this phenomenon; according to Berman,[11] among 200,000 South African employees of the Witwatersrand Gold Mines, between the years 1925-1933, the incidence of malignancy was 15 per 100,000. The American Negro, a definite but distant relative, but who lived in comparative luxury, showed rate of 60.7 per 100,000 for the year 1930. The argument might be advanced that American detection and recording were superior and therefore these statistics are of no value. This is unlikely inasmuch as large mining operations invariably possess a formidable medical staff which has sufficient time accurately to determine the above figures. Pittsford[12] reports, "the neoplastic death rate among the natives of Natal and Zululand during the four years 1906-1909 was 0.21 per 100M. During the same period the death rate for cancer among Asiatic Indian immigrants was 11.9 and among the European residents was 57.5.

In America we have available more comprehensive figures—data which seems to indicate that the cancer rate has increased during the past fifty years in a rough but direct proportion to the rate of "urbanization" or city dwelling. Table 4 presents these highly provocative statistics.

TABLE 4
CANCER RATE AND URBAN POPULATION IN UNITED STATES

| *Near* | *Cancer per 100,000* | *Urban Population percent* |
|---|---|---|
| 1880 | 29 | 28 |
| 1890 | 47 | 36 |
| 1900 | 63 | 40 |
| 1910 | 76 | 46 |
| 1920 | 83 | 52 |
| 1930 | 97 | 57 |
| 1940 | 120 | 57 |
| 1948 | 134 | ? |

(Growth of Urban Population in U.S.A., Bur. of Census)

TABLE 5
CANCER RATE AND URBAN POPULATION OF SECTIONS OF UNITED STATES[13]

| *Section* | *1930 Cancer Rate per 100,000* | *1930 Urban Population %* | *1940 Cancer Rate per 100,000* | *1940 Urban Population* %* |
|---|---|---|---|---|
| New England | 131.4 | 77 | 162.8 | |
| Pacific | 121.7 | 67 | 145 | |
| Mid-Atlantic | 112.5 | 77 | 147 | |
| East No. Central | 106.6 | 66 | 134 | |
| West No. Central | 105.7 | 41 | 129 | |
| Mountain | 76.9 | 39 | 96 | |
| South Atlantic | 61.8 | 36 | 81 | |
| East So. Central | 60.4 | 28 | 73 | |
| West So. Central | 51.4 | 36 | 79 | |

*Not available at time of publication.

New England States: N.H., Me., Vt., Mass., R.I., Conn.

contrasts between the high and low incidence states—the degree of urbanization and climate. It will be noted that with the exception of Wyoming and North Dakota, the low incidence states fall into the relatively warm zone. A friendly climate with a mild, short winter would definitely permit a great deal more outdoor living than would the northern states. There also would be available an abundance of fruit, vegetables and sunlight. These factors are minimized upon consideration of the fact that Florida shows a cancer rate of 97.3 per 100M while Georgia is fortunate with only 58.8. There is but slight variation in their respective climatic characteristics. Or notice California with a malignant mortality of 139.8 and Nevada, directly adjacent, with a rate of only 83.2. Any meteorlogic differences would be negligible. Apparently climate must be abandoned as an influential force. This leaves "degree of urbanization" as the only known alternative in the role of a potentially causative factor. As already stated, on a statistical basis, the neoplastic death rate and the degree of urbanization are in a direct ratio with appreciable exactness. This introduces another question—is there a difference in the mode of living between ruralites and urbanites that could be responsible for

# Today's Life Span

*by L. Stambovsky*

| | |
|---|---|
| Pacific: | Wash., Ore., Calif. |
| Middle Atlantic: | N.Y., N.J., Penna. |
| East No. Central: | Ohio, Ind., Ill., Mich., Wis. |
| West No. Central: | Minn., Ia., Mo., N.D., S.D., Neb., Kan. |
| Mountain: | Mont., Ida., Wyo., Col., N.M., Ariz., Utah, Nev. |
| So. Atlantic: | Del., Md., Va., W.Va., N.C., S.C., Ga., Fla. |
| East So. Central: | Ky., Tenn., Ala., Miss. |
| West So. Central: | Ark., La., Okla., Texas. |

Table 5 delineates sectional incidence of cancer by groups of states. That some degree of error could have been incurred in the compilation of these statistics by virtue of superior or inferior diagnostic and statistical facilities, will not be disputed. However the radical difference for many of the mortality rates in Table 5 are so extreme, that even though compensated for substantial error, they are still, to say the least, impressive. We have herein an avenue which begs to be explored and which might lead to veritable bonanza of information relative to our most feared and elusive killer. On a hypothetical basis, the writer's interpretation for the quoted discrepancies is thus: there are two major con-

their varied susceptibility to neoplastic disease. Whether or not the answer lies in the word diet, will be determined only by further study. However it is a fact that nutritionally, formidable diversity does exist. The city dweller gets most of his food from bags, cans and glass. He is in close proximity to that institution known as the "delicatessen" from which he may choose an infinite number of highly refined, denatured and otherwise altered foodstuffs. The country cousin too has these foods available but to a much lesser degree. There is neither the necessity nor convenience for same. The rural population has easy access to vegetables, fruit, and other products of the farm which have not yet been subjected to those destructive practices which render these foodstuffs more acceptable to the eye, nose or taste—or improves their storage or otherwise commercials qualities. An examination of the different types of meat products consumed by various population groups would be in order at this point. Of practically all animals butchered, 64.5 per cent terminates as dressed carcass (muscle tissue); 21 per cent visceral or offal products; 14 per cent is lost as moisture. A Chicago[14] meat packing company reports that the

*(Continued on page 518)*

PHOTO COURTESY HOUBIGANT

# Cream Sachets

*by Harry Hilfer*

CREAM Sachets have appeared on the market with intermittent frequency for a period of at least twenty years. The forms in which they have appeared have been varied but all of these products have a common property of providing the fragrance in a vehicle other than alcoholic solution so that it may be applied from a jar rather than a bottle or may be rubbed in as an ointment rather than dabbed on as a liquid. Actually I believe that their greatest attraction is their novelty since each resurgence of popularity was marked by its appearance in a somewhat different form. There seems to be a renewed activity in the cream sachets, but whether or not they will retain their current popularity is at this point problematical. However, the very definite success of the stick cologne would indicate that novel types of vehicles for perfume oils could be successful.

Previous attempts at formulation of cream sachets included non-aqueous media as well as the more acceptable oil-in-water emulsions. The early non-aqueous media utilized spermaceti and cetyl alcohol in conjunction with petroleum and mineral oil in which the oils were dissolved. These preparations have largely disappeared from the market because they were rather oily in their characteristics. However, improvement in formulation resulted from the appearance on the market of the stearic, palmitic and coconut fatty acid esters of the lower monhydric alcohols, chiefly ethyl, isopropyl and butyl. These compounds, which are good solvents for most essential oils, have the further advantage of having extremely low viscosities so that when applied and rubbed on the skin the layer is capable of becoming so thin as to be almost non-existent. Their employment in conjunction with waxes as a thickening medium therefore became a distinct advantage as compared to the previous types of preparations. The use of these esters

further had a tendency—because of their relatively low vapor pressures to prevent the essential oils from volatilizing as quickly as they otherwise would have—so that there was better odor retention, and they therefore behaved, in effect, as fixatives.

The ideal method of application, however, was by the use of the emulsion. There were a number of technical problems which had to be overcome, however, before the shelf life of a cream containing perhaps 10 per cent or more of essential oils would be compatible with marketing conditions. Essential oils themselves consist of alcohols, aldehydes, ethers, ketones and esters principally and though the alcohols and ethers are stable under most conditions, the other compounds are subject to hydrolysis or oxidation. The esters, principally, are prone to decomposition particularly in an aqueous medium at an alkaline pH. Since most of the emulsions made utilized a soap as an emulsifier, the compounder could only eliminate all esters from his perfume composition—thereby limiting himself too greatly in the effects he was trying to achieve. The appearance on the market of emulsifiers which were neutral in their pH's, particularly the sulfated alcohols and non-ionic materials, overcame this difficulty to a large extent.

A good cream sachet vehicle, therefore, should be neutral in pH, relatively non-greasy in application and final effect, and should be possessed of all the other qualities which contribute to the aesthetic forms desired. The general cosmetic cream type which best fits into this category is the hand cream type of preparation. The stereotyped hand cream is a stearic acid soap and glycerol preparation, but auxiliary emulsifiers such as glyceryl monostearate have come into greater use in these types of preparations, because of their ability to soften and stabilize the cream. Since we must also be prepared to incorporate about 10 per cent of essential oils in the product it would also be wise to dispense with most if not all of the glycerol. The preparation would therefore consist of essential oils, mono glycerides, and water. To this must be added an emulsifying agent which is neutral in pH so that the cream would be stabilized.

There are a large number of compounds which fit into the desirable type of emulsifying agencies. Perhaps the best known are the sulfated alcohols, but the chemist should also examine the characteristics of the polyethylene oxide esters, and the polyethoxylated sorbitan esters, since there may be representatives among these groups which would perform the desired functions and in addition give to the product the characteristics inherent in each of these agencies. Among the sulfated alcohols are available commercially sodium lauryl sulfate, sodium cetyl sulfate and sodium stearyl sulfate with the sodium lauryl sulfate probably the best known but by no means necessarily the best choice of the group. In examining these compounds, it should be remembered that sodium lauryl sulfate is by far the most soluble of the group and that this solubility increases with increase in temperature to a point where it is possible that a true solution could take place if the temperature is high enough and therefore render it useless as an emulsifying agent at that temperature. The other two compounds have lower solubilities and are therefore better able to withstand higher temperatures, but conversely this efficacy may be impaired at too low a temperature. The behavior of these compounds is comparable to soaps insofar as their general solubility constants in water vary with their molecular weights, except that the change is much more marked in the case of the alkyl sulfates. It is therefore suggested that mixtures be used to keep the emulsion stable over a wide temperature range.

The constants of the non-ionic emulsifiers of the polyethoxylated type are best procured from the manufacturer. There are an infinite number of possible compounds in this category and they could not possibly be covered in this article. The generalities mentioned in reference to the alkyl sulfates would hold in the use of the non-ionic materials as well. Quaternary ammonium compounds may also have a place in this type of preparation being discussed except that care should be taken to eliminate any free acid in the formulation.

With the exception of creams employing quaternaries as emulsifiers, stearic acid may be used in conjunction with glyceryl monostearate in the interest of lower cost and possibly to aid in the "setting up" of the cream. Isopropyl myristate or other esters of low molecular weight alcohols also would fit into such a cream formulation. However, I am under the impression that there is a patent covering the use of certain types of these esters as solvents for essential oils. These patents should be checked and licensing arrangements made with the patent holders in case of interference.

In reference to the use of monoglycerides other esters of polyhydric alcohols may also be used. Glyceryl monostearate is perhaps the best known of these materials and it was therefore used as an example. There are substances such as propylene glycol stearate which could be used as well depending on the desired effect. The purpose of these substances is to increase the stability of the emulsion, and glyceryl monostearate is not the only hydrophylic agency that need be used. More recently esters of various polymers of ethylene glycol have come into prominance as well as poly-glyceryl esters. The chemist therefore has a wide choice of stabilizing agents and subsidiary effects.

In attempting any formulation change it should be remembered that none of these agencies could be substituted for each other without other changes being made in the formulation. A shift from a mono-glyceride to a propylene glycol ester would undoubtedly necessitate a change in the concentration of the other emulsifiers being used. The choice of essential oils would also have a marked effect because of the varying characteristics these oils possess towards emulsification. For this reason it is difficult to treat their formulation in other than broad generalities.

PHOTOS COURTESY FRITZSCHE BROTHERS INC.

# Behind the Clove Oil Shortage

*by Frank Child III*

UNDER normal circumstances the United States distills over 100 tons of clove bud oil a year, which represents the work of approximately six major distillers. This oil is derived from cloves imported primarily from Zanzibar and Madagascar off the east coast of Africa. Until a few months ago the American industry was running smoothly, handling most of the country's clove-oil needs with hardly any being brought in from overseas.

Then, about October, 1951, a critical shortage loomed which, by March, 1952, was seriously crippling the industry, and distillers had cut their operations by as much as 75 per cent. This month it looks as if the industry will grind to a halt, unless something is done about it. Distillers say the next move is up to the Office of Price Stabilization in Washington. A review of events leading up to the present crisis may help crystallize the picture.

When the O.P.S. established price ceilings during the early part of last year, the various essential-oil houses set their individual limits at about $3.25 a pound, because they were selling the oil in that range during the assigned base period. At the same time, manufacturers were permitted, under Manufacturing Order No. 22, to request permission to raise their ceiling prices, should any hardships prevail. But, essential oils distilled in this country were exempted from this ruling. This means that American distillers of clove bud oil can not apply to the O.P.S. for price relief, except through mazes of red tape, even if conditions warrant it. If an essential oil is distilled in a foreign country and imported as such, it does come under this ruling, and prices may be advanced without undue difficulty.

When the clove-oil price limits were set up, distillers were paying 30c a pound for clove spice. Since it takes 6 pounds of spice to distill 1 pound of oil, the cost of the raw material alone per pound of oil was $1.80. The oil was being sold at $3.25, so the difference between the spice value ($1.80) and the selling price of the oil ($3.25) amounted to $1.45 which represented the cost of grinding the cloves, cooking them, and distilling and rectifying the oil. Out of this $1.45, the distiller also had to obtain a reasonable profit, which he was able to do.

At that time, the distillers had an 8 to 12-month supply of clove spice on hand and were able to carry on operations well within the ceiling-price limit. Each time they

purchased new shipments of cloves, though, the raw-material price inched up higher and higher, so that by October, 1951, under the existing conditions, it was impossible to buy cloves at the new price, distill the oil from them, and sell the product at the old price. That is when they began to curtail distilling operations.

By March of this year, the cost of cloves had gone up more than 2½ times to 80c a pound, meaning that six pounds of cloves now cost $4.80. With the lawful ceiling price of clove oil still at $3.25 a pound, the distillers are faced with the problem of paying $4.80 just for an equivalent amount of raw material. In other words, they have a deficit of $1.55 for every pound of oil, even before they start distilling—and the manufacturing costs must be added to that loss.

Assuming that the expense of handling the cloves and obtaining the oil, plus the margin of profit, is the same as that of a year ago ($1.45) this would bring the cost of the oil today up to $4.80 + $1.45, or $6.25, say the distillers, who are willing to settle for $6. In fact, most houses are at present quoting the oil at prices anywhere from $5 to $6, but these figures are nominal, since there is very little oil available, and these prices do not conform to O.P.S. regulations.

More than one distiller has already been forced to shut down clove-oil operations completely, and, needing the oil for customers, has begun to buy it direct from European distillers, or the islands of Zanzibar and Madagascar. Many of the foreign distillers do not have the up-to-date and efficient equipment that is used in this country, and there is always a chance the oil may be inferior or below U.S.P. standards. There is no way of knowing until the oil arrives.

This country has always imported some quantities of clove-leaf and clove-stem oil which are extracted from the leaves of the trees and stem of the cloves. They are used for manufacturing eugenol which in turn is used in the preparation of perfumes such as carnation (for scented soaps, smelling salts and bath salts) and to a much lesser extent, in the manufacture of vanillin.

These oils are inferior to the clove bud oil and do not meet U.S.P. standards. They cannot be used in place of the bud oil in flavoring, nor is it lawful to mix them with the bud oil to achieve a less expensive product. When sold separately, the leaf and stem oils must be so labeled.

Clove-oil dealers believe that the Government, by this one rigid O.P.S. regulation, has not only seriously handicapped the industry, but is also inadvertently encouraging American distillers to import oil of unknown quality from foreign distillers, thereby helping to support their foreign competitors at the expense of themselves.

Basically, the only mistake the O.P.S. has made is in failing to adjust this regulation in accordance with changing economic conditions. It is in no way responsible for the rising costs of the clove spice, which is a direct result of a sudden increase in world demand. The clove has been used in the Far East since ancient times as a flavoring agent in foods, to a much greater degree than in America, as well as in religious ceremonies. To this day cloves are used at weddings to shower on newly-weds in a manner similar to the American custom which calls for rice or confetti. A relatively new use for the spice was adopted in Java as long ago as 1916, that of grinding the clove up and mixing the powder with tobacco to make cigarettes with a strong, aromatic flavor which crackle when burning. The popularity of these cigarettes has since spread like wildfire throughout the East and is no small factor in the increased consumption of cloves in that area.

India, Indonesia and Singapore increased their imports of that spice so much last year that Zanzibar's record 1950-1951 crop of more than 20,000 tons was swallowed up long before the year's end. The 1952 crop will be far below average, as might be expected after such a flourishing season. Madagascar, which averages about 2,000 tons, will provide some 1,500 tons of cloves this year.

Zanzibar and Pemba, a neighboring island, provide about four-fifths of the world's supply of cloves, with a yearly average of 9,000 tons. There are token crops in the Dutch East Indies, British Malaya and Ceylon which might conceivably become important secondary growing areas if world consumption continues to increase at its current rate. Although the combined acreage devoted to clove trees on Zanzibar and Pemba is much less than that on the larger island of Madagascar, and the population smaller, these two islands under an Arab sultan and British protection have always been

*(Continued on page 558)*

COURTESY INTERNATIONAL MINERALS & CHEMICAL CORPORATION

# Glutamic Acid

*by Milton A. Lesser*

GLUTAMIC acid has long been known to biochemists as one of the amino acids. Though classed as a "nonessential" amino acid, it is a major constituent of body protein—one that enters into many metabolic processes. During recent years, however, glutamic acid has assumed new importance as an aid in the treatment of epilepsy and as a possible adjunct in the improvement of certain mentally retarded individuals.

Aside from these and other important potential uses, it is noteworthy that glutamic acid has a well established place as a valuable chemical substance. As a matter of fact, glutamic acid is the most widely used of all the commercially available amino acids. Thus, in combination with hydrochloric acid, it forms glutamic acid hydrochloride, a compound administered to increase the supply of hydrochloric acid in the stomach. Its sodium salt, monosodium glutamate, is an important flavoring intensifier for processed foods, particularly soups and sauces. Moreover, glutamic acid is itself an intermediate in the synthesis of folic acid, one of the B complex vitamins used in the treatment of anemia. Glutamic acid is also of interest as a possible intermediate in the manufacture of industrial chemicals, including weed killers and plant hormones.[1]

Glutamic acid was first isolated in 1866 from wheat gluten by Ritthausen. Several years later, in 1873, Hlasiwetz and Haberman obtained the acid from animal protein. These and many other subsequent investigations showed that glutamic acid is commonly present in many vegetable and animal proteins, in fairly large amounts.[2] As noted, in a survey[3] prepared by one of the leading producers of this material, it appears to be present as its amide, glutamine, both in proteins and in some non-protein materials. The naturally occurring form is *l*-glutamic acid. Investigations by Hac and her colleagues[4] have shown that the free *l*-glutamic acid content of various foods may range from 0.005 per cent to 0.23 per cent. Free glutamic acid has been found in many tissues; the highest concentrations being in the brain cortex, heart, spleen and thymus.[5]

Although it has been possible, since Wolff's classic work in 1890, to synthesize glutamic acid, the amino acid is obtained commercially from natural sources. As remarked by Ewing,[6] wheat gluten is one of the richest and probably the most economical source of glutamic aicd; the proteins in wheat gluten containing approximately 40 per cent of the amino acid. In addition to wheat gluten, glutamic acid is also obtained from corn, soybean protein and from Steffens Filtrate, a by-product of beet sugar manufacture. As indicated the patent literature,[7-10] modifications and improvements in the production of glutamic acid are constantly being made.

Glutamic acid is obtained as an odorless, white crystalline material. It has a sour taste, but as the acid is neutralized by saliva, a very persistent, distinctive taste appears which has been characterized as the "glutamate taste." This taste, it is said,[3] is unique with the *l*-glutamate ion. It is not experienced with *d*-glutamate or the ion of any other amino acid. The increased saliva flow produced by glutamic acid may persist for as long as half an hour.

As already indicated, glutamic acid is classed as one of the nonessential or dispensable amino acids.

PHOTO GENERAL MILLS INC.

This is a reflection of the fact, long known to biochemists and nutritionists, that glutamic acid is readily synthesized in the animal and human body. However, glutamic acid occupies a somewhat different position in a system of classification in which the amino acids are grouped as indispensable, dispensable or growth accelerators. In this system, glutamic acid is listed among the growth accelerators.[11]

Thus it has been observed that the nonessential amino acids render a diet, whose nitrogen is derived from the essential amino acids, distinctly superior in promoting growth of young rats.[12-13] The value of glutamic acid for this purpose has been well indicated in studies like those of Rose, Oesterling and Womack.[14] In their work, the weight gain of young rats receiving only the ten essential amino acids was found to be only 70 to 75 per cent as much as that of their litter mates receiving nineteen amino acids. The addition of glutamic acid to the essentials, however, significantly stimulated the rate of gain. Similar studies by other workers[15] have shown that the combination of non-essential amino acids, including glutamic acid, with the essential amino acids, resulted in marked increases in appetite and body weight of the animals.

Pertinent is the observation[3] that glutamic acid is important in the synthesis of other amino acids because of its central position in both reversible oxidative deamination and transamination. Also noteworthy is the fact that glutamic acid is glycogenic and also displays a marked specific dynamic action.

Glutamic acid is unusual in that it appears to be the only known amino acid to be metabolized by slices of brain tissue.[16-17] As remarked by Bessman,[18] the brain is unique among body tissues in that it is highly selective in its metabolism. With the exception of glutamic acid, only carbohydrate can maintain the respiration of isolated brain tissue.

In his review on this amino acid, Gadson[19] cites investigations which demonstrated that glutamic acid increased the activity of brain respiration and was oxidized by peripheral nerve, and by muscle. From such findings it was concluded that "glutamic acid differed from other amino acids by virtue of being oxidized in organs whose metabolism was mainly concerned with carbohydrates, and which are inert toward most of the other amino acids."

Consideration of such data, led Price, Waelsch and Putnam[20] to try glutamic acid in the treatment of epilepsy. The use of the amino acid was based, not only on the finding that glutamic acid is intimately related to brain metabolism, but also on the belief that the acid would overcome certain disadvantages of the ketogenic dietary regimen used to prevent petit mal attacks and psychomotor seizures. In their initial studies, *dl*-glutamic acid hydrochloride was used in conjunction with known anticonvulsant therapy. Although grand mal seizures were unaffected by the drug, seizures associated with slow wave activity in the encephalogram, namely petit mal annd psychomotor types, were decreased in frequency.

Accompanying this improvement was a "most gratifying" increase in mental and physical alertness. The patient was usually found to be more energetic and happier, mood swings were less pronounced, behavior mannerisms were ameliorated and the patient was more congenial with his associates.

In further studies, Waelsch and Price[21] tried to determine the possible biochemical mechanism underlying the action of the amino acid. Their findings strongly suggested that the therapeutic value of the drug was attributable to *l*-glutamic acid alone and not to the acidifying properties of the racemic mixture. They also observed that when glutamic acid was withdrawn from the diet, the seizures increased in frequency. However, resumption of glutamic acid again caused a decrease in seizures.

In the studies reported by Spangler,[22] glutamic acid was administered to epileptic patients subject to both grand mal and petit mal seizures. When glutamic acid was added to the anticonvulsant therapy, the petit mal seizures were reduced in frequency and modified in character and severity. The effect was practically the same in all the six patients.

In view of such findings, it is not surprising that glutamic acid has been recommended[23] as a useful adjunct for the treatment of petit mal epilepsy. In one instance, the amino acid was described[24] as being of "unquestionable benefit" in some patients with this condition.

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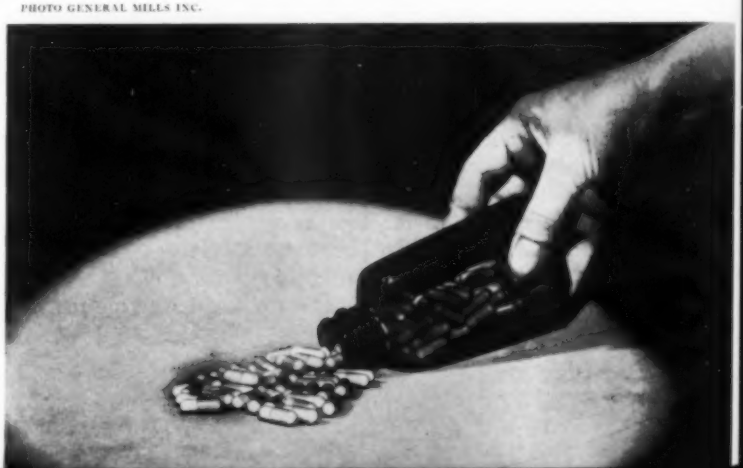
PHOTO GENERAL MILLS INC.



# Antimetabolites and Their Mechanism of Inhibition

*by Erwin Di Cyan., Ph.D.*

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SEQUELAE of drug administration are observed with increasing frequency. A classic example resides in the exfoliation noticed after penicillin therapy, or the reactivation of an old fungus infection or the appearance of glossitis. Other examples are apparent, such as the diarrhea often concomitant with terramycin therapy, Monilia infections after administration of chloromycetin, or the flare-up of seborrheal dermatitis when an exacerbation of another dermatitis occurs, although the two dermatites are due to different microorganisms. The functions of metabolites and their antagonists are the causes of these phenomena.

The administration of a given antibiotic in the treatment of an infection has certain predictable results. The administration of a mixture of two or more antibiotics for the suppression of an infection may be expected to have an additive or synergistic effect—but often an attenuation of the effectiveness of the mixed antibiotics takes place, due to mutually antagonistic effects. For example, aureomycin and streptomycin or aureomycin and penicillin mixtures may have synergistic or antagonistic effects, depending on such factors as the concentration of each antibiotic, frequency of administration, or the nature of the invading organism. Other antibiotics, as terramycin or chloramphenicol, or even nonbiotic chemotherapeutic substances may exhibit mutual antagonisms. Metabolites and their antagonists are the causes of these phenomena as well.

Metabolites, or substances antagonistic to metabolites i.e. antimetabolites are not necessarily undesirable substances, for salubrious results are often obtained through them. For example, the effects of antibiotics in disease, or the use of antibiotics in animal feeds are due to the interference of antibiotics with the metabolism of pathogenic organisms, preventing them from synthesizing or utilizing their pabulum.

Similarly, avitaminoses are not essentially caused by a deficiency in the ingestion of a given vitamin, or

to its poor absorption when administered. Though avitaminoses can, and do occur through poor absorption such as in enterocolitis, or through accelerated excretion such as by the use of laxatives and diuretics, or through an accelerated consumption such as through the use of thyroid, a mechanism more common than these reasons exists for avitaminoses. That is the mechanism by which metabolites used in the intermediate process of building essential metabolites, or the essential metabolites themselves, are inhibited by a metabolite antagonist, i.e. an antimetabolite.

It is known that barbiturates, salicylates, sulfonamides, antibiotics, arsenicals or other substances may deplete the depot or store of vitamins in the tissues or otherwise make them unavailable. It is both interesting and important to know the *mechanisms* of these actions, for these mechanisms are not merely academic considerations: they are principles which affect sound therapeutics. Let us examine some of these principles.

It is well known that p-aminobenzoic acid (PABA) attenuates the effect of the sulfonamides and conversely, sulfonamides affect the utilization of PABA by an organism, because there is a mutual competition between PABA and sulfonamides. But before we go further, let us define our terms. A metabolite is any substance that is produced as a result of a metabolic action. For example, endogenously synthesized vitamins may be metabolites, for they are synthesized in the intestines of an animal. A metabolite becomes an essential metabolite if it is necessary to normal metabolic processes. An antimetabolite is a substance that is antagonistic to a given metabolite. Our subject is particularly concerned with antimetabolites. A great number of antimetabolites are chemical analogues to the metabolites which they inhibit, i.e. have the same chemical group in their structure, which chemical group in the analogue, avidly displaces the same chemical group in the metabolite. For example, ethionine, the ethyl analogue of methionine, is the antimetabolite of methionine. Ethionine is similar enough to interfere with methionine, but different enough to be purposeless in filling the nutritional or other metabolic functions served by methionine.

Though we are concerned with antimetabolites and their inhibition of metabolites we shall examine the mechanism and functions of substances which inhibit the inhibitors—the substances which inhibit the antimetabolites, as the antimetabolites inhibit a metabolite.

The term, antimetabolite, is not rigid or absolute. A substance may be an antimetabolite for one microorganism but not an antimetabolite for another microorganism. What may be an essential metabolite for one microorganism may not be necessarily essential for other microorganisms. There are no strict antitheses in these matters.

All these and other biochemical reactions take place on the cell level and there is a dynamic interrelationship among these metabolites and antimetabolites. All of these substances have a common task, in that they accelerate or retard an enzyme reaction. All these activities take place in the matrix of enzyme—substrate—catalyst. In fact, the pharmacological role that almost any drug plays on that stage, is on the cell level. The lowest common denominator is the cell as the smallest living unit, and the biochemical changes that occur on the cell level are essentially enzymatic and they are common to almost any drug affecting the cell, in the matrix of enzyme—substrate—catalyst.

Antimetabolites inhibit enzyme reactions. They may decrease the rate of the formation of a metabolite, or they may increase the rate of destruction of the metabolite. Antimetabolites may inhibit by *competitive inhibition* or by *non-competitive inhibition*. In either event they act by interfering with an enzyme so that that enzyme can no longer function as an effective catalyst.

Some of these inhibitory reactions are reversible, others are not reversible. An enzyme is composed of two portions, a coenzyme and an apoenzyme. Antimetabolites may inactivate an enzyme by combining either with the coenzyme or the apoenzyme (rarely with both) making that part of the enzyme, and functionally the whole enzyme with which it combines inoperative.

Competitive inhibition is a mechanism of inhibition when two substances vie for the same metabolite. Our example of a sulfonamide with PABA is a case in point. Sulfonamides are antibacterial because they combine with a nutrient used by microorganisms and make their utilization of a nutrient or metabolite, such as PABA impossible. Incidentally, the addition of more PABA to a system in which PABA has been inactivated by sulfonamides, nullifies or mitigates the action of the sulfonamide, since more PABA is thus available for the metabolism of pathogenic microorganisms. Therefore, the administration of the vitamin B complex (which contains PABA) during sulfonamide therapy is unwise. In competitive inhibition there is a rivalry for the metabolite, nutrient or pabulum both by a drug and a microorganism. If the drug displaces the metabolite necessary to the economy of a microorganism and makes it unavailable for the metabolism of the microorganism, the latter fails to reproduce, or dies.

Another mechanism of inhibition is noncompetitive inhibition, often referred to as neutralization. Cases in point are the fluorides, arsenicals, certain chemotherapeutic substances, hydrocyanic acid, mercury or other protoplasmic poisons. These noncompetitive metabolite antagonists or noncompetitive antimetabolites do not compete for a nutrient. They merely poison a catalyst, or a whole enzyme system or they poison a substance important to the functioning of an enzyme system. Noncompetitive inhibition much like competitive inhibition is often a desirable phenomenon, as for example in the treatment of malaria, atabrine or another antimalarial poisons a catalyst and thus interferes with the metabolism of the malarial parasite—

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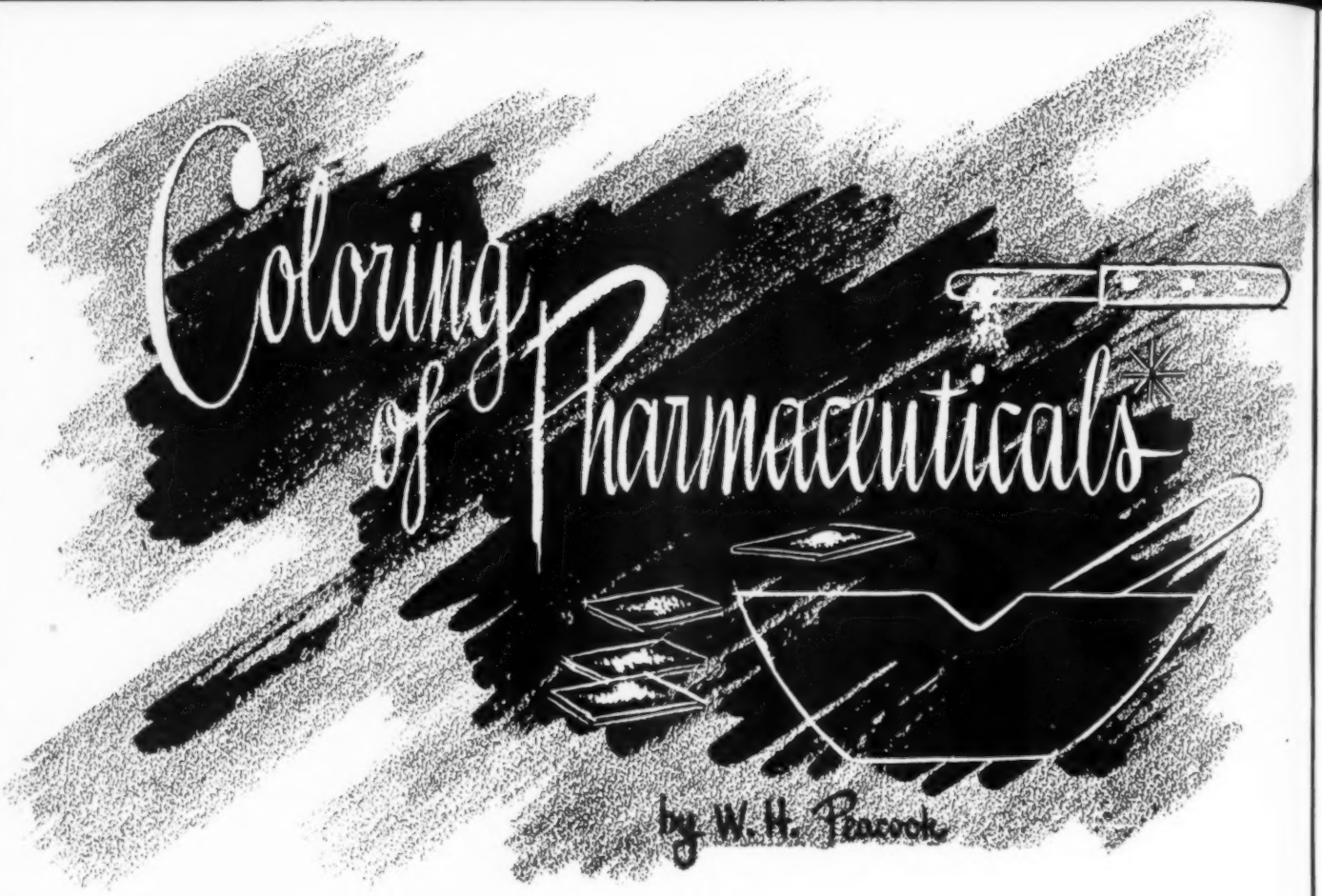



## Part II

### Notes on Some "Trouble-Shooting" Processing Problems

*Dyes and pigments are not chemically inert and consequently may react with some drugs. If they react without a visible change it is usually difficult to detect. In most cases, however, the color of the product is adversely affected and, therefore, any unexpected color change should be investigated.*

*The reactivity or compatibility of a coloring agent and the other ingredients of a pharmaceutical product are usually determined when the product is first formulated or compounded. However experience has shown the occasionally erratic coloring effects are obtained in well established products and often the cause of the trouble difficult to determine. Accordingly a few examples of "trouble-shooting" investigations may be of interest as showing some of the sources of such trouble.*

1. *Problem:* A certain plant was producing an acidic cough syrup and coloring it to a clear, transparent, cherry red with F.D.&C. Red No. 1. Unexpectedly one batch of the syrup, when filled into bottles, appeared as a cloudy, reddish-brown solution.

*Cause:* Investigation disclosed that the off-color solution had a strong odor of acetylene. Because the iron carbide in cast iron forms acetylene on treatment with acids, it was suspected that the acidic cough syrup had come in contact with iron during processing. A survey of the production range traced the source of the acetylene to the use in processing the syrup of a filter press, newly installed in the line, which had cast iron filter plates. The nascent hydrogen and acetylene evolved tended to destroy the dye and the dissolved iron salts tended to form an insoluble iron complex with the dye. Possibly, the drugs present also were chemically attacked.

2. *Problem:* On another occasion, it was found difficult to maintain uniformity of color in a liquid preparation colored with F.D.&C. Blue No. 2 (indigotine).

*Cause:* The variation in color was traced to variations in the chlorine content of the municipal water supply. A higher chlorine content bleached more dye.

3. *Problem:* In a gelatinous product there also were variations in color from lot to lot and at different stages.

*Cause:* There were two sources of trouble, (1st) gelatin in the product was developing a yellowish-brown self-color which varied with temperature and length of processing. (2nd) The presence of 50 parts of sulfur dioxide per million of product tended to destroy the azo dyes being used. As neither the self-color changes of the gelatin nor the sulfur dioxide could be entirely eliminated, constant color matching control was necessary on each batch. The coloring of gelatine capsules often requires a high degree of mastercraftsmanship.

4. *Problem:* Here again it was found difficult to control the color of successive batches of a liquid drug preparation.

*Cause:* This was a case closely analogous to Problem 3, above, except that the product contained about 45 parts per million of a peroxide. The concentration of peroxide seemed small, but, nevertheless, was about equal to one-half of the dye present. The amount of dye bleached by the peroxide varied as the peroxide content varied from lot to lot. Here again color matching control was essential.

5. *Problem:* Erratic losses of color, again difficulty in maintaining uniformity of color from batch to batch of the liquid product.

*Cause:* In this case the exact cause was not determined. Some reducing sugars in the preparation may have had some effect, but as a change in the preservative used led to more uniformly colored production, it is probable some enzymatic or fermentation action may have been involved.

6. *Problem:* A preparation colored with F.D.&C. Red No. 3 was erratically stable in storage.

*Cause:* The dye that was used has excellent stability to alkalies, but is precipitated by acids. By increasing slightly the alkalinity of the preparation more uniformly colored and more stable effects were obtained. Some hydrolysis or slow fermentation yielding acidic by-products may have been occurring.

7. *Problem:* Tablet coatings were not uniform in color, generally appearing mottled.

*Cause:* Several problems of this type have been studied both in tablet coatings and in gelatin capsules and the following causes of the effect have been found:

(a) In one case the formulation contained a soluble iron salt. Some of the metallic salt was permeating into the tablet coating and being changed to a brownish hydrate, probably by alkali in the wax emulsion applied, or was forming dull colored complexes with the dyes. The effect was minimized by first applying to the tablets an enteric coating; and an enteric lining to the capsules.

(b) In another case the product contained ascorbic acid, which reduced or reacted with the dyes. Here again an isolating, enteric type coating minimized the color changes.

(c) These two cases were examples of the effect of strong reducing agents on dyes; see Table V. The action tends to increase in solutions, especially when warmed. When mixed reducing agents are present the coloring problem is complicated. With ferrous sulfate a dye such as D.&C. Yellow No. 10, might resist the reducing reactions, but would tend slowly to form sparingly soluble iron complexes. About the safest dye to use under these conditions is D.&C. Red No. 19, which not only resists reducing conditions well, but being a "basic" dye has little tendency to form iron salts. It can be adsorbed on hydrate gels, however, which may or may not be advantageous.

**Table V**
**Dyes Resistant to Reducing Agents**

| *Dye* | *Resistance to Reducing Agents* | *Resistance to 5% Ferrous Sulfate Solution* |
|---|---|---|
| D.&C. Red No. 19 | Good | Very Good (Soluble) |
| D.&C. Red No. 20 | Good | Very Good (Soluble) |
| D.&C. Red No. 37 | Good | Very Good (Insoluble) |
| D.&C. Yellow No. 10 | Good | Moderate (Hazy) |
| D.&C. Yellow No. 11 | Good | Moderate (Insoluble) |
| Ext. D.&C. Blue No. 1 | Moderate | Good (Soluble) |
| Ext. D.&C. Blue No. 2 | Moderate | Good (Soluble) |

8. *Problem:* Coatings on tablets were mottled and unevenly colored, varying from lot to lot.

*Cause:* In this case, there seemed to be no chemical causes for the mottled appearance. However, physically the coatings varied in transparency, smoothness and thickness of film from lot to lot and/or mill to mill. The more transparent, uneven and variable in thickness the film, the more mottled the color appearance of the coating. With some dyes there were accompanying dichromatic effects also. The addition of small percentages of titanium dioxide to the coating formulation reduced the transparency and gave more uniformly colored results. It was necessary, to greatly increase the percentage of chromatic colorant in the formulae, to overcome the tinting effect of the titanium dioxide.

9. *Problem:* A plant making magenta red-colored gelatin capsules unexpectedly produced several barrels of reddish orange-colored capsules. The dye in both the red-colored and orange-colored capsules came from the same dye container.

*Cause:* When some of the red-colored and some of the orange-colored capsules were redissolved and the solution concentrations were adjusted, both gave identically colored solutions. The cause was the dichromatic action of the dye, F. D.&C. Red No. 2. At different concentrations this dye yields different color effects, for example, see Table VI.

A similar effect is obtained by increasing the thickness of the gelatin film. This is readily observed by pouring a gelatin solution dyed with this dye onto a cold glass plate. Where the gelatin coating is thin it is a bluish-red, but as the thickness of the coating increases its color changes through scarlet to reddish-orange.

(*Continued on page 551*)

*Imagination and ingenuity transform graceful Duraglas stock bottle (A-8309) into a package that's uniquely yours!*

# SPRUCE-UP with no mark-up

DID YOU EVER REALIZE that you can give your line a package that's distinctly yours *at no extra cost?*

Owens-Illinois has more than 1400 different sizes and styles of stock-mold Duraglas bottles. Among them you're sure to find one that is just right for your product. Then, skilled packaging designers at the Duraglas Center help you achieve an unusual label and closure effect to make a package that wins friends and makes sales.

Even in unusual times, there is wide latitude to the individuality you can give your product. And, remember, no matter what market conditions may be, it doesn't pay to let your package get out of the *habit* of selling.

**Duraglas** bottles are protectors of quality

TRADE MARK REG. U.S. PAT. OFF.

**OWENS-ILLINOIS GLASS COMPANY • TOLEDO 1, OHIO • BRANCHES IN PRINCIPAL CITIES**

# Packaging and Selling

## *Accelerating Chlorophyll*

The interest in chlorophyll is booming at an accelerated pace in this industry. Sales of chlorophyll products are said to have run at about $40,000,000 last year and various estimates of the potential sales of chlorophyll products all begin at $100,000,000.

It is one of the fascinating interests of this industry that a new raw material can boom so suddenly and so quickly capture the interest of the industry. Of course, in one sense chlorophyll is not a new product for this trade. In the early 30's when none of it was produced here, we brought in a limited amount from Germany where it was supposedly made from spinach. At this time the market for chlorophyll was largely confined to coloring soap, cordials and a few other products where the brilliant green color and the natural substance made it desirable, even at the high price of that time. Soon thereafter certified food colors displaced chlorophyll for this use and for a gap of about ten years very little was heard of chlorophyll in this industry.

The pioneers in chlorophyll research, Rystan, Inc., certainly initiated one of the most dramatic episodes in our trade, and in no class of products is the use of chlorophyll piling up into a major battle more clearly than tooth paste.

The Pepsodent Company who is at present a licensee of the Rystan patent was the first of the major tooth paste companies on the market with a chlorophyll tooth paste, Chlorodent. Public response from their early promotions was so active and so exceeded the expectations of the early retailers and the company, that there could be little doubt in the minds of other tooth paste manufacturers that something new of importance had arrived. Following Pepsodent is the new Ipana Ammoniated Chlorophyll tooth paste of Bristol-Meyers. This tooth paste, in its advertising, speaks of science's great decay fighter (the ammoniated formula), plus nature's great deodorant. Colgate-Palmolive-Peet Co. has already launched its advertising on Colgate Chlorophyll tooth paste. This advertising for Colgate is stressing avoidance of tooth decay as well as emphasizing the chlorophyll content as a deodorant.

Whitehall Pharmacal now has their new "Kolynos with Chlorophyll" and the advertising claimed here is that it will "instantly destroy mouth odors and cut tooth decay".

Block Drug Co. is already in a few test markets with Amm-i-dent chlorophyll tooth paste and is said to be testing still another chlorophyll tooth paste using the same name as Block's chlorophyll mouth wash, Green Mint.

There are reports around the trade that the Pure Pac Corporation, manufacturers of Chloromint Mouth Wash will introduce a new chlorophyll tooth paste using that same brand name.

Rumors arise all through the trade of additional tooth paste brands entering the chlorophyll market and whether these are arising from a conviction that chlorophyll in tooth paste will be a permanent addition to the industry or whether these are merely defensive movements by some of the big fellows remains to be seen. What is without question true is that the public will be given ample opportunity to make the decision.

At the same time the use of chlorophyll is mounting rapidly in many other sections of the trade and is unquestionably growing in popular acceptance for those products which were originally on the market on the basis of deodorizing qualities.

The De Pree Company of Holland, Michigan, claimed to be the first manufacturer of the internal tablet, is launching a large advertising campaign featuring New Improved Nullo chlorophyll tablets. Also according to a publicity release Nullo claims that independent market research in the drug trade now clearly shows that the new chlorophyll breath and body deodorant products now account for retail sales representing over 57 per cent of the total dollar volume on external deodorant products including al underarm deodorant creams, liquids and sprays.

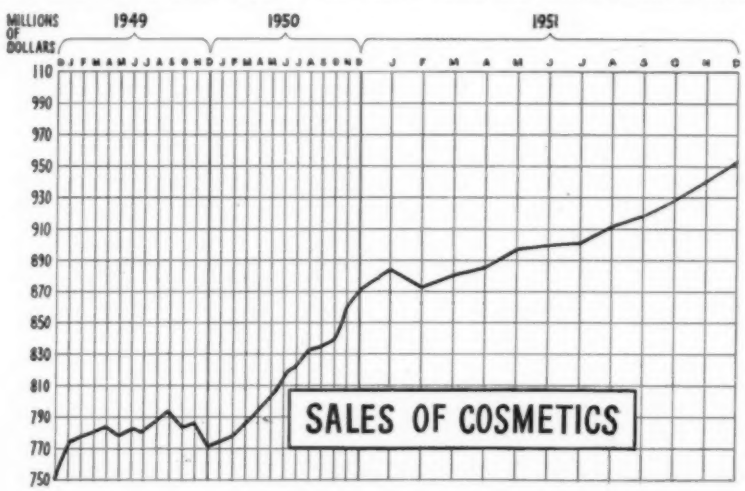
Here are some of the products which now contain chlorophyll:

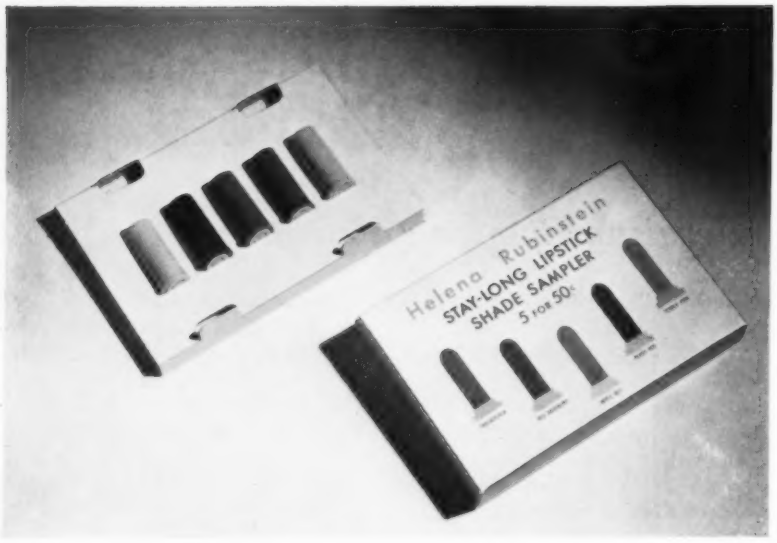
*LOZENGES AND TABLETS*—There are at least 35 in this classification.

*CHEWING GUM*—At least five chewing gums are now on the market containing chlorophyll.

*MOUTH WASH*—At least six in this classification.

Retail sales of cosmetics for the twelve months ended with December 1951 totaled $953,636,000. This compares with $940,313,000 for the twelve months ended with November 1951 and with $869,591,000 for the twelve months ended with December 1950.






*SHAMPOO*—Two in this classification.

*DOG FOOD*—At least eight in this classification.

Other incidental uses such as stick deodorants, cigarettes, scented candles, ointments, etc. must be included in this galaxy.

If it's considered that the chlorophyll band wagon really did not get under way until the early part of 1950 this present line up must admit chlorophyll to the products of this trade which have shown spectacular momentum in industry acceptance.

### Make Up Yourself

Plenty of people are convinced that the American consumer would much rather wait on themselves than be served and quite a few people are making a great deal of money in proving that this is at least partly true.

We never expected that the idea of the laundro-mat would be carried over into the cosmetic business but here it is.

Pamper House in New York City is a very pleasant place which you can treat as a club, find expert advice as well as all facilities to do anything that you want for yourself in the way of beauty care. The cost is a charter membership fee of $1.00 plus 25 cents for each visit, plus the cost of the materials you use. From what we hear it is working and its crowded, and while it probably won't seriously interfere with the lush and plush it does look as if Pamper House is filling a very large dollar and cents vacuum in beauty care.

### Tie-in or Premium

Is it a tie-in or is it a premium. The perfumers, in reaching around for business, are getting involved in some things which will end up in designating perfume as premium merchandise if they don't watch out. For instance, at least two perfumers now have tie-in sales with women's hosiery. Lanvin has a style stocking package to sell in combination with Lanvin perfume. At the same time a hosiery company has selected Shulton's Friendship's Garden Toilet Water as a gift token, to promote a new line of fancy healed stockings for Fruit of the Loom nylon hosiery.

### Room to Explore

According to Dr. John C. Crantz of the University of Maryland School of Medicine in Baltimore, 80 per cent of the drugs now used by the family physicians were unknown ten years ago. The future appears equally fruitful according to Dr. Crantz. He said that new organic chemicals are produced at the rate of 10,000 a year.

### Super-Bigger

Supermarket sales of drug and cosmetic products are expanding both dollar-wise and in the number of stores opening a department. McMahon & Morse who are marketing consultants in the supermarket field have just come up with a survey which states that supermarket sales of the products in this industry will reach $300 million. Also the number and size of drug and cosmetic departments are expected to increase by more than 50 per cent.

While stores are experimenting with all sorts of products in this trade the survey indicates that approximately 200-250 items will have the kind of turnovre and unit sales per shelf space that conforms to supermarket thinking.

### Rubinstein's Shade Sampler

To promote the sale of five different shades of Helena Rubinstein lipstick, a new "Shade Sampler" packaging unit has been manufactured by Robert Gair Company, Inc.

On the front of the carton, sheet-fed gravure printing reproduces with absolute fidelity representative shades of lipstick.

A special inside platform with side tabs holds the five lipsticks firmly in place. Chart on reverse describes each shade of lipstick and the dress colors with which it should be used.

### Not So Many in Our Corner

There is quite a band wagon building up as the supermarket goes to town on the products of this industry. McCall's magazine is said to have signed up 800 large supermarkets, with another thousand already standing on line, for a May promotion to build up sales of drugs and cosmetics now selling in supermarket stores. Some of the promotions to be used are imprinted balloons, newspaper advertising and materials mailed to stores.

As this pace of the big magazines to work out a close tie-up with retail stores accelerates, it looks as if these big fellows are going to have to pick the corners from which they will do their fighting. So far, only one magazine is lined up on an all out basis with the druggist. Supermarkets, the ruling favorite, are running way ahead, and have several of the big circulations.

We hope these big circulations know exactly what they are doing from the long range viewpoint, as clearly as they seem to realize what is bringing home the bacon at this particular moment.

### Prom

According to R. N. W. Harris, President of the Toni Company, the new Prom Home Permanent Wave Kit will have an initial spearhead advertising in Metropolitan Comics costing $500,000. This will be followed up by a multi-million dollar campaign.

Introduced six months ago Prom is said to be the third leading home permanent on the market. Prom is reported to be the first home permanent to feature automatic neutralization and a choice of three personalized wave lotions for different types of hair, that is, it is available in three strengths: Super — "For hard-to-wave hair." Regular—"For normal hair" and Very Gentle—"for color-treated or easy-to-wave hair."

# SALES GEMS

Jewels Courtesy of
Harry Winston, Inc.

## PLAXPAK BOTTLES...

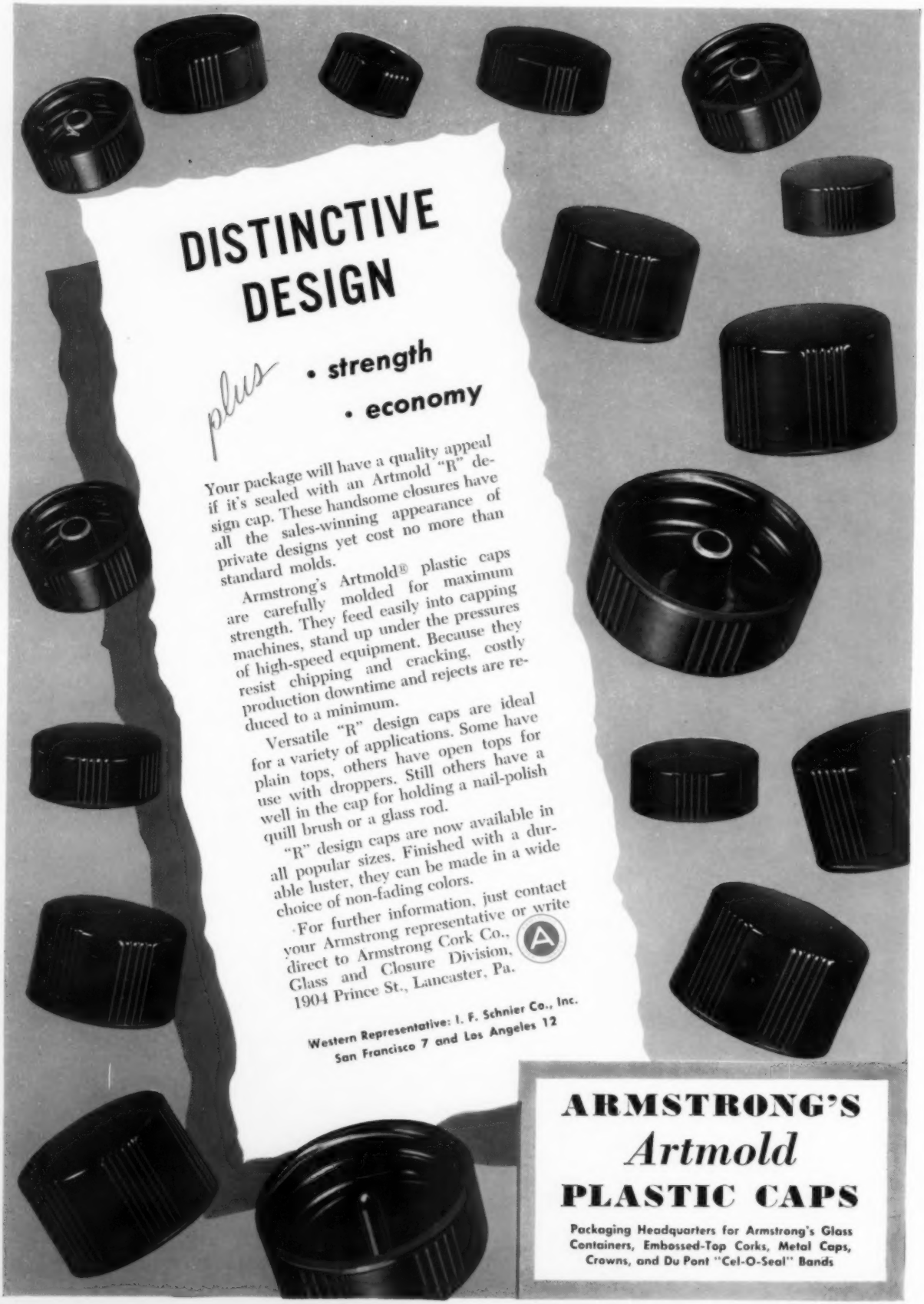
*Counter brilliance...Take-home appeal*

Color to attract the eye...a softly lustrous finish to please it...these are visual assets accorded products packaged in Plaxpak® polyethylene bottles. Couple these advantages with unbreakability, light weight and touch appeal — and you've got a package that starts selling the moment it appears on the counter and that keeps selling every time it's used.

PLAX
FOR PLASTICS
NOT SUBSTITUTES — IMPROVEMENTS

**PLAX CORPORATION** HARTFORD 1, CONNECTICUT

Plax® blow-molded products made under U.S. Pats. 2129239, 2175053, 2175054, 2230188, 2230190, 2260750, 2263751, 2349176, 2349177, 2349178.


DISTINCTIVE DESIGN
plus • strength
• economy
Your package will have a quality appeal if it's sealed with an Artmold "R" design cap. These handsome closures have all the sales-winning appearance of private designs yet cost no more than standard molds.
Armstrong's Artmold® plastic caps are carefully molded for maximum strength. They feed easily into capping machines, stand up under the pressures of high-speed equipment. Because they resist chipping and cracking, costly production downtime and rejects are reduced to a minimum.
Versatile "R" design caps are ideal for a variety of applications. Some have plain tops, others have open tops for use with droppers. Still others have a well in the cap for holding a nail-polish quill brush or a glass rod.
"R" design caps are now available in all popular sizes. Finished with a durable luster, they can be made in a wide choice of non-fading colors.
For further information, just contact your Armstrong representative or write direct to Armstrong Cork Co., Glass and Closure Division, 1904 Prince St., Lancaster, Pa.
Western Representative: I. F. Schnier Co., Inc. San Francisco 7 and Los Angeles 12
ARMSTRONG'S
Artmold
PLASTIC CAPS
Packaging Headquarters for Armstrong's Glass Containers, Embossed-Top Corks, Metal Caps, Crowns, and Du Pont "Cel-O-Seal" Bands

## Not for Us

It looks as if a bathing suit manufacturer has taken a big, broad jump way out in front of anyone in the cosmetic business in a dramatic promotion for fashion and beauty.

Catalina swim suit makers have persuaded Pan American World Airways, Universal-International Studio and the city of Long Beach, California to join in as co-sponsors of this Beauty Pageant.

Catalina has appropriated the bulk of a $500,000 advertising appropriation for this Miss Universe Pageant.

According to Oscar Meinhardt, Catalina's advertising and promotion director, who was formerly with the Miss America Pageant, the companies expect 500,000 inquiries and believes that 100,000 girls will enter the Miss Universe contest.

## Cosmetic Tie-Up

Here's another cosmetic tie-up, to join the ranks of cosmetic tie-ups with nylon stockings. The Thor Washing Machine Company is going to give every woman who watches a demonstration of their machine for ten minutes a Lilt Home Permanent Wave Kit worth $2.25. If the lady buys the washing machine she receives a $39.50 "Week-Ender" cosmetic kit that is made up as a model's hat box full of Patricia Stevens' beauty aids. This promotion will run till May 31st.

## Folding Carton Booklet

A new 28-page "Style Guide" detailing construction designs for folding cartons has been issued by Robert Gair Company, Inc., New York, manufacturers of folding cartons, paperboard and shipping containers. These designs are adaptable to almost any shape or type of product.

Information is included on use of machine-filled and machine-formed cartons, also a helpful check list of points to be considered in planning packaging.

Free copy of this new booklet can be secured upon request.

## Coming

With sales now substantially exceeding $1,000,000 Nutri-Tonic Home Permanent Wave is moving into the big time. Distribution at present is largely west of Chicago.

This dynamic young company, only four years old, is headed by S. O. Ronk who is president of both Waval-Thermal, manufacturer and distributor of Nutri-Tonic to the beauty trade, and Beaute Vues Corp. which takes care of retail distribution.

## New Package for Sun Tan Oil

Douglas Laboratories of Miami have selected a more convenient package for their Coppertone Sun Tan Oil. It is being pressure packed in Spra-Tainer.

## Does Color Smell

Among all the human senses, eye appeal has shown in the last decade an overwhelmingly superior salesmanship as compared to the other senses, particularly taste and smell. Many industires have developed the use of color to that of a fine art and for these industries, including the cosmetic business, the use of color has added a substantial factor in consumers' acceptance and approval.

A great deal of inventiveness, flare and imagination has been employed in making color a factor in selling. There seems to be no inclination on the part of the color for people to lose their stride in this direction.

For instance, the research laboratory of the Sun Chemical Company has just come up with a claim that there is a correlation between color and sense of smell. According to these folks, the most preferred odors are rose, lilac, pine, lily of the valley, violet, coffee, balsam, cedar, winter green, chocolate, carnation, orange and vanilla.

Applying this, these research people claim that pink, lavender, pale yellow and green are, in that order, the best smelling colors. On the other hand, gray, black and deep shades in general produce an opposite reaction.

So far as taste goes, orange stands No. 1, after that peach, red, brown, buff, warm yellow and clear green are said to be the real appetite odors.

From another direction, a leading authority on lighting is developing what they call "mood conditioning". This authority believes that we are coming very near the time when colored lights will keep us in a pleasant mood. For instance, he suggests color green light for hot nights; pinkish, amber colored light for cold nights.

This new theory of mood lighting is to be introduced in retail marketing. For instance, the use of a pinkish light to illuminate meat is supposed to make this display a great deal more appetizing.

In textiles and in fashion as well as in interior decoration the imaginative use of color has probably reached its peak. Probably the only place in which the cosmetic industry can equal these folks in suggestive names has been in the nail enamel business and these people have been under the serious limitation of being confined, in general, to the shades of a limited number of colors.

We have recently seen the introduction of the word "Benedictine" in the color world, and among the colors that it is joining as recent favorites are Ivory Frost, Pink Frost, Light Coffee and Wild Plum. Other words which are loaded with suggestion are Flaming Rose, Teal Blue, Dutch Copper, Tuscan Olive, and Jewel Purple.

According to our rusty memory of psychology, the sense of smell has more direct path to the brain than other senses. Certainly in most parts of the animal world it is the most highly developed and the most sensitive of all senses. The various branches of the aromatic and fragrance industry, particularly the companies specializing in aromatic chemicals and essential oils, have made some progress in applying the sense of smell to commercial use as a sales factor, parallel to the extravagantly successful use of the sense of sight through color. Up to now the sense of smell as a salesman is a very weak competitor to the sense of sight, that is, color. Maybe this is because of a flaw in the human animal and because the sense of smell has retreated in civilization to one of the weaker senses. On the other hand, maybe it's because the fragrance industry has merely lacked the spark and initiative of the people interested in color.

The story goes that an advertising man made a speech a little while ago in which he praised the "peace and contentment" message contained in advertising as contrasted with the general term of "gloom and depression" to be

# PLASTAFOL

## NEW TRANSPARENT PACKAGING BY GAIR

## A Sales Sensation!

This new GAIR PLASTAFOL packaging which is a combination of Rigid Plastic with GAIR famous CARTONS is an outstanding achievement in the folding carton industry.

GAIR PLASTAFOL combination carton is definitely a SELL-ON-SIGHT package with a large area for product visibility. The ingenious transparent panels are so sturdy and rigid that it will not crinkle or break even when the cartons are used for mass displays on the counter, shelf or windows. PLASTAFOL is a sales-promotion masterpiece.

**ROBERT GAIR COMPANY, INC.** 155 EAST 44th STREET, NEW YORK • TORONTO

PAPERBOARD • FOLDING CARTONS • SHIPPING CONTAINERS

found nowadays in the news columns and the editorial pages.

When this executive returned from the speech he found on his desk a large scroll on which somebody had pasted on a 14 foot streamer a very choice selection of advertisements featuring liver ailments, dandruff, etc.

Sloan's Liniment has completed 75 years of business activity and is still going strong. It was just 75 years ago that Earl S. Sloan started out from Ohio to peddle this liniment which was then impartially offered for man or beast. In Chicago this peddler grew into a business and finally was established in Boston reaching a total annual volume of nearly $1,000,000 in 1913 when the company was sold to the then The William R. Water Co.

Sloan's Liniment has been spending about $250,000 a year in advertising and has been selling over 1,000,000 bottles a year. Now added to the liniment in Sloan's Balm which was launched not long ago.

### State's Rights

In a recent court decision which Macy lost in the Queens New York Supreme Court there is a brush of fresh air, in the words of Justice Pette, on State's Rights. In this action attorneys for Macy argued that although the product, Ex-Lax, was manufactured in Brooklyn, both its manufacturer and the stores which sold it were engaged in interstate commerce and also that the many ingredients used in Ex-Lax were brought in from outside of New York State. For this reason, Macy contended, they were not violating the State Feld-Crawford Law, the New York State Fair Trade Act.

Said Justice Pette, "Parties to this action were not dealing with an ingredient but with the end product, the laxative, Ex-Lax. This product is manufactured in New York State, sold to the defendant in New York State and subject to the Fair Trade contract entered into in New York State. If this is not intrastate commerce, then that term is meaningless."

When we remember some years ago a court decision stating that the elevator operators in a New York City office building were engaged in interstate commerce because tenants in that building were engaged in interstate commerce then the words of Judge Pette seem crystal clear in their common sense. There have been a lot of tongue-in-cheek decisions in the last 20 years regarding State's Rights and it's refreshing to see this pointed and realistic decision.

### Plastic Packaging

Highlighting the luxury of newly marketed Erno Laszlo cosmetics are handsome all-plastic containers topped with rich-looking Beetle Plastic closures. Whereas glass has previously predominated in packaging of exclusive, high-cost cosmetics, the Laszlo containers point up the dignity possible in plastic packaging.

Crowning each jar, bottle and powder box is a low-gloss, black Beetle urea closure bearing a finely carved cameo on the top surface. The 8-ounce rectangular bottle, which keynotes the design of the other containers, utilizes two Beetle closures, one round and one square. Under the decorative square closure is a functional, standard round, threaded closure.

### Candy in the Drug Store

Candy is now a billion dollar industry. This volume was topped in 1951. The Research Division of the National Association of Tobacco Distributors states that wholesalers accounted for $737,545 worth of candy sales last year. In 1951 tobacco wholesalers accounted for 43.5 per cent of the wholesale volume. Confectionary wholesalers chalked up 38.2 per cent, grocery and food wholesalers 16.5 per cent and drug wholesalers less than 1 per cent, that is .6.

### One Dose Pillows

Aluminum Pillows are the newest cosmetic container. These are small, pillow-like containers, very strong and leak-proof, made by pressing together foil and pliofilm. The container simply rips off a corner of the pillow, presses it and there is a one-shot dosage of Balm Argenta and lotion.

### All Wet

Lady Esther's new million dollar advertising campaign will include a tie-up with the Aquacade at Flushing, Queens. The "Aquadorables" will use Lady Esther's Complete Creme Make-Up both under water and on the stage.

### Over-the-Counter Antibiotic

Baciguent ointment, the bacitracin preparation widely used in the treatment of superficial infections of the skin, is now being made available in two sizes for over-counter distribution by The Upjohn Company.

Accepted by the Food and Drug Administration for non-prescription sales, Baciguent, at present, is the only antibiotic ointment which may be purchased directly over the counter.

### Listerine 20-year Sales Peak

Listerine Antiseptic sales have reached a twenty-year high point, partly as a result of the current widespread public interest in bad breath control, officials of the Lambert Company recently announced.

A large scale advertising campaign now under way in local newspapers utilizes extensive laboratory research to document Company claims that the germicidal action of Listerine Antiseptic reduces odor bacteria on tooth, mouth and throat surfaces by 95 per cent within fifteen minutes.

Listerine's large-space ads in local Sunday papers and dailies, backed by national magazine advertising and a coast-to-coast $1,000,000 television show, have also taken issue with some of the claims.

The Handiest
Bottle Ever Made!
Manufactured Under Pat. No. 2,515,093
Other Patents Pending
ELMER E. MILLS CORPORATION'S
Polyethylene
Plastic Bottle
This is *the* bottle with consumer appeals so strong they actually help sell your product!
**It's unbreakable**—a powerful consumer selling point on safety and thriftiness.
**It's lightweight**—takes up less space (and incidentally cuts your shipping cost).
**It's a "squeeze bottle"**—can be readily adapted to use as a stream—as a spray—as a sprinkler finish.
Our stock bottle is available in 1—2—4—8 ounce sizes. Through a special printing process we can print your label or design right on the bottle.
In addition to the production of this stock bottle and stock closure, we also custom make other thermoplastic bottles, closures and atomizers. You can depend upon their being made with the same high standards of craftsmanship which keynote all Mills plastic products.
For more information on our custom molding service, or for a free sample bottle, write us or our sales agent today.
ELMER E. MILLS CORPORATION
2930 N. Ashland Ave., Chicago 13, Illinois
*Sales Agent:* W. BRAUN & COMPANY
Chicago, 300 N. Canal St. New York, 595 Fifth Ave.

# Doings

**McKesson & Robbins** is producing a new plastic version of its Tartan Suntan Lotion. The bottle is of unbreakable white opaque vinyl plastic which is said to give full protection against any formula change in the sunscreen due to exposure to sun.

**Helene Curtis** added Suave Creme Hairdressing to its line in March, with a 45 per cent profit counter-display deal. It has been featured along with regular Suave in all Helene Curtis consumer advertising.

**Bourjois** has introduced a colorful new Spring novelty called the Perfume Corsage, a decorative assortment of Spring flowers plus a spill-proof purse flacon of Evening in Paris. Purchase of this assortment automatically qualifies the retailer to purchase two or more of the profitable "Dealer's Choice" assortments which Bourjois is making available for a limited time.

**Winthrop-Stearns** has made its Neo-Synephrine Thenfadil hydrochloride available in an aromatic viscous solution, with dropper. It is used for the temporary relief of stuffed nose, increased nasal secretions, or frequent sneezing accompanying common cold and hay fever.

**Plax Corp.** has devised a plastic bottle with a measuring device inside in the form of a well which has a capacity of a teaspoon.

**Pfizer** has offered two new dosage forms of terramycin, one for aerosol and one for topical powder. The aerosol product, suggested for use against infections of the respiratory tract, is sold in a combination package consisting of a 10-cc. vial of 75 per cent propylene glycol solution and a 5 cc. vial containing 0.5 gm. of crystalline terramycin hydrochloride.

The topical powder is being marketed in a shaker-top glass vial containing 30 gm. of the medication and provides a dry form of terramycin for application to surface wounds and abrasions.

**Peggy Sage** has formulated a new shade, Proud Beauty, a bright pink with a rosy glow. It is a shade which will flatter the complete range of blues, beiges, pinks, greys, green and a selection of prints and stripes.

**Richard Hudnut** is offering a new combination package consisting of eight fluid ounces of Enriched Creme Shampoo plus a two-ounce bottle of conditioning Creme Rinse in an attractive display boot.

**Hoffmann-La Roche** has introduced two new products: Synkayvite-CB Lozenges "Roche", new, cherry-flavored, candy-like lozenges which provide Synkayvite (vitamin K compound) for the prevention of delayed hemorrhage, vitamin C for the promotion of wound healing and B-complex factors for reinforcing the nutritional status of the patient; and Roniacol Elixir "Roche", a potent, well tolerated liquid vasodilator.

**Merck** has prepared Penstrep "4:½", a new penicillin-dihydrostreptomycin antibiotic product, containing one-half the crystalline dihydrostreptomycin of its companion product, Penstrep "4:1", first marketed in October, 1951. The new product contains ½ gram of crystalline dihydrostreptomycin, 300,000 units of crystalline Procaine Penicillin G, and 100,000 units of Crystalline Penicillin G Potassium in each dose.

**Johnson & Johnson** is offering druggist a free bonus can of its Prickly Heat Powder with each 11 cans ordered.

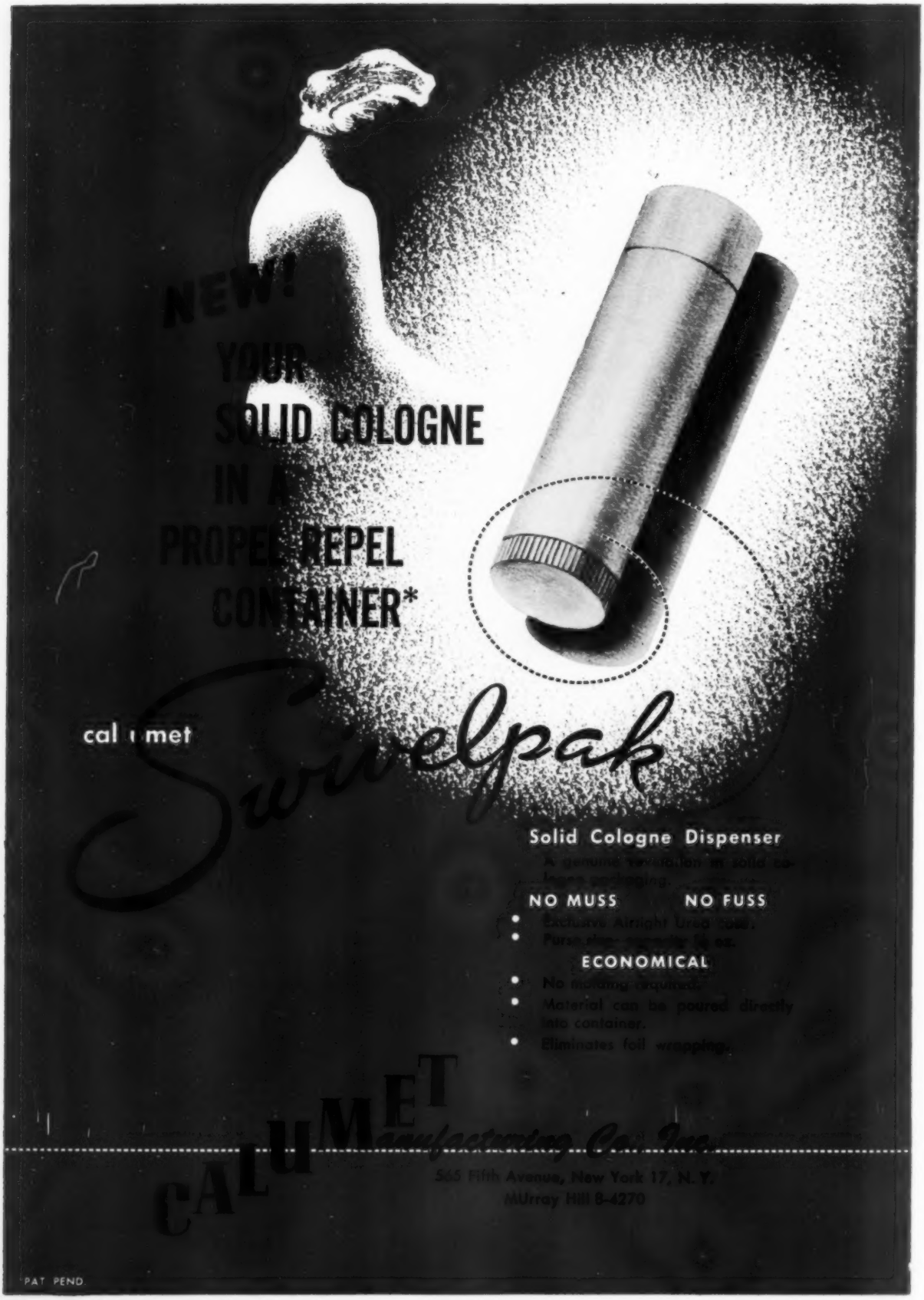
**Revlon** recently introduced another in the series of high-fashion make-up colors, "Paint the Town Pink". It is available in nail enamel, frosted nail enamel, regular lipstick, Indelible-Creme lipstick, and a specially packaged Match Box set including nail enamel and Indelible-Creme lipstick.

**U.S. Vitamin Corp.** has introduced two new products: Vi-Aqua Syrup, a syrup with a candy-like flavor combining the normally oil-soluble vitamins A and D in aqueous solution for more rapid and complete absorption and better utilization, together with ascorbic acid and B complex factors; and Panthoderm Cream, a water-miscible cream containing 2 per cent panthenol for use as a healing aid in such conditions as diaper rash, prickly heat, rash of measles, for wounds, and burns.

**The Allen B. Wrisley Co.** is offering several special summer selections as part of their 90th anniversary promotion through June 30. These include: an eight-cake toilet assortment, "Wrisley's Anniversary Fine Soap Assortment," a box of Floral Bouquet containing five cakes of toilet soap in floral design, and an 8-ounce bottle of lemon shampoo with a cake of lemon soap attached

**Gallia Laboratories** is distributing Ptgmal, a new bland, soothing greaseless ointment, highly effective as an antipruritic and in the treatment of minor skin irritations.

**Helena Rubinstein** has designed a new plastic kit for eye essentials. It contains two tubes of waterproof mascara, one black for daytime and one blue for evening, a blue eyeshadow and an eyebrow pencil. The entire kit rolls up and fills a minimum of space in the purse.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YOUR
SOLID COLOGNE
IN A
PROPEL REPEL
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CALUMET
Manufacturing Co., Inc.
565 Fifth Avenue, New York 17, N. Y.
MUrray Hill 8-4270
PAT PEND.

# Doin's ... (CONTINUED)

**The Wm. S. Merrell Co.'s** new Parencillin No. 250 in aqueous suspension was released last month on a national scale. It offers improved break-away and syringeability features which permit increased injectable efficiency.

**Lederle's** Gevral Geriatric Vitamin-Mineral Capsules, designed to prevent dietary deficiencies in the aged, are now available in a smaller bottling size of 30 capsules.

**Dermetics'** national advertising campaign featuring Dermetics S.A. Cleanser got underway last month in *Vogue* and is appearing in the April *Harper's Bazaar*, repeating monthly during 1952 in both magazines. Trade advertising will tie in with the national advertising.

**Winthrop-Stearns** has also introduced Thenfadil hydrochloride and A.P.C. as a prescription item for symptomatic treatment of upper respiratory infections, particularly the common cold.

**John Hudson Moore** is presenting a new Spring Sportsman gift package, The Sportsman Country Club Set, pairing two grooming sticks, Toddy Stick *Solidified* after-shave lotion and D-BAR *solidified* dedodorant, in a miniature golf bag.

**Almay** has a new nail polish which is said to be non-irritating and absolutely safe for every woman, no matter how sensitive she is to ordinary polishes. It is available in 9 shades, including Natural. Almay has also offered a new nail polish remover.

**Parfums Corday** has fashioned the "Purse-Trio," an ensemble combining Toujours Moi, Fame and Zigane, three Corday eau de toilette and a golden purse-case, into which any of the three eau de toilette bottles fit.

**The Skwish Corp.** is manufacturing a lipstick-size all-purpose atomizer for the purse, named Skwish. Handy for cologne, toilet water, perfume, nose or throat spray, and other uses, it appears in 12 attractive designs and works with a press of the rubber top. It retails at $1.25, no tax.

**Bauer & Black** has announced its #232 WET-PRUFTape Offer to tie in with its Life advertising campaign at the point of sale. A small purchase of Curity 3-Cut WET-PRUF Adhesive obtains one free, specially constructed floor display and one mounted 4-color Life reprint.

**Whitehall Pharmacal Co.** has developed Chlora Stick, a solid chlorophyll deodorant designed to retail through independent and chain drug stores and beauty shops for $1 plus tax.

**The Wm. S. Merrell Co.** has added to its listing a new prescription specialty, Nitranitol P. V. (Brand of Mannitol Hexanitrate Phenobarbital and Veratrum Alkaloids) for refractory cases of hypertension. It is Merrell's fifth Nitranitol product.

**Gourielli** is offering a wafer-thin compact of silvery metal with a golden border, accented with a debossed, especially hand-engraved Gourielli crest.

**Artra Cosmetics** is offering a display bonus deal on IMRA, cosmetic creal hair remover. With each purchase of 8 units of IMRA, 2½-ounce size, and 3 units of the 4½-ounce size, a $1 tube of the 4½-ounce size will be received free.

**The Nestle-LeMur Co.** is offering for a limited time one free baby hair treatment with the purchase of every five units.

**John H. Breck Inc.** has introduced through drug and department stores two new baby preparations, Baby Breck Powder, and Baby Breck Soap.

**Maybelline** has introduced a Twin-Pack of Eyebrow Pencils in velvet black, dark brown, light brown and auburn shades.

**Tussy Cosmetiques** has added Midnight Bubbling Bath Perfume to is Midnight fragrance series. It contains a high concentration of the light musky Midnight Perfume.

**Solon Palmer** has announced a new popular price package of their Gardenglo Soap. The new package of three round hand-size cakes sells for $2.

**Aziza** has introduced a new color in mascara called "Clinging Vine." It is a green-leaf shade.

**Milkmaid** has created a new make-up color named Cherry Pink, keyed to go beautifully with the wide range of blues, champagnes, pastels, greys and white which fashion has introduced for the new season.

**Countess M a r i t z a** has introduced Montage Toilet Water with a matching Stick Cologne as her gift for a limited time.

**Germaine Monteil** has a new eau de cologne and dusting powder called Frou-Frou.

**Pfizer** has placed bacitracin ophthalmic ointment and bacitracin topical ointment on the market. Both products contain 500 units of bacitracin suspended in each gram of ointment and both are stable for at least 18 months at room temperature. The ophthalmic dosage is intended for use in the local treatment of superficial eye infections, and the topical form is indicated for pyogenic infections of the skin.

We can supply fine quality handmade glass containers made to private mold specifications or in a stock design such as the one illustrated. They can be furnished plain or with fired-on ceramic labels.

CARR-LOWREY GLASS CO.

*Designers and manufacturers of fine glass containers*

Factory and Main Office: BALTIMORE 3, MD. • New York Office: 40 W. FORTIETH ST. • Chicago Office: 1572 MERCHANDISE MART

# Chalk up ANOTHER ONE for Crown Closures

Add S. E. Massengill of Bristol, Tennessee to the steadily increasing number of packers who are calling on Crown to satisfy their closure needs. And the cap used to seal this product is a good example of the reason so many packers are using Crown Closures. It's a Crown Screw Cap with a liner specially selected for the individual product. This closure has the famous Deep Hook Thread that grips under the glass thread of the container. It spins on easily during application ... provides a sure, dependable seal ... answers the customers' wants for easy removal and re-closing.

Why take a chance on closure satisfaction when you can take advantage of Crown's years of sealing experience and laboratory facilities? They are at your disposal without obligation, to help you select the closure and liner that is exactly right for your products. Crown Cork & Seal Company, Baltimore 3, Maryland. *World's Largest Makers of Metal Closures.*

**CROWN CLOSURES**

Approved by Millions of Housewives

# *Custom Protection* —the safe, smart way to package pharmaceuticals

**ACTHAR,** prepared by Armour Laboratories, Chicago, Ill.

How easy it would be for these costly medical supplies—or any pharmaceutical product—to arrive at their destinations unfit for use! Shock, vibration, moisture—any one or all of these hazards could cause irreparable damage to a single shipment. Yet damage rarely occurs because so many manufacturers have found the safe, positive protective measure in Kimberly-Clark Interior Packaging—KIMPAK®. It provides *custom protection* for any kind of pharmaceutical.

KIMPAK is soft, clean, feather-light—as easy to apply as wrapping paper. Because KIMPAK will absorb up to 16 times its own weight in moisture within 30 seconds, it is widely used as an absorbent packaging material in the mailed sampling of liquids to physicians. Available in rolls, sheets or pads, there is a specification for every conceivable problem, whether you package pills, tablets, capsules, or liquids in bottles, tubes, vials, ampoules. But KIMPAK not only acts as a cushion to float your product to market damage-free, it also serves to make—and *keep*—it attractive.

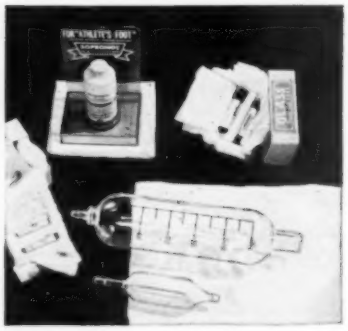
Write for further information, including the folder on packaging pharmaceuticals, to Dept. J4, Kimberly-Clark Corporation, Neenah, Wisconsin.

KIMPAK INTERIOR PACKAGING

A Product of **Kimberly-Clark**

®T. M. REG. U. S. & FOREIGN COUNTRIES

**Assorted Shipments,** Parke, Davis & Company, Detroit, Michigan.



**Assorted Pharmaceuticals,** prepared by Wyeth Inc., New York, N. Y.

**Thephorin Lotion,** prepared by Hoffman-LaRoche, Inc., Nutley, N. J.

# KEEP YOUR POWDER DRY

## in handsome Continental Containers

If your product is sold in powder form and is made for bath or other personal use, a Continental container is the safest way to package it. These efficient metal cans help keep out moisture and light—help keep powders usable. They're light in the hand, too, and plenty strong.

You can take your pick of dozens of Continental proprietary cans with all sorts of dispensing closures. Our designers are masters at giving these sturdy packages sales-winning appeal; our lithography makes them sing. For the full story, just give us a call.

## CONTINENTAL CAN COMPANY

CONTINENTAL CAN BUILDING • 100 East 42nd Street, New York 17, N. Y.

EASTERN DIVISION
100 E. 42nd St., New York 17

CENTRAL DIVISION
135 So. La Salle St., Chicago 3

PACIFIC DIVISION
Russ Building, San Francisco 4

# NEWS FROM RICHFORD

It looks like another big year for stick cologne.

We're certainly ready for it, and our new "PUSH-UP" stick cologne container in 3 purse sizes is already playing an important role in the planning of many top firms.

"PUSH-UP" and the other Richford engineered containers shown here are ready now.

If you have any container problems, we'll be glad to work with you.

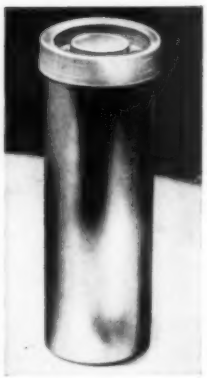
**Cordially,**

*P E Roehrich*

**P. E. Roehrich, Pres.**

# RICHFORD — — CREATIVELY ENGINEERED STICK COLOGNE CONTAINERS

RICHFORD PUSH-UP* GOLDEN METAL PURSE STICK CONTAINER

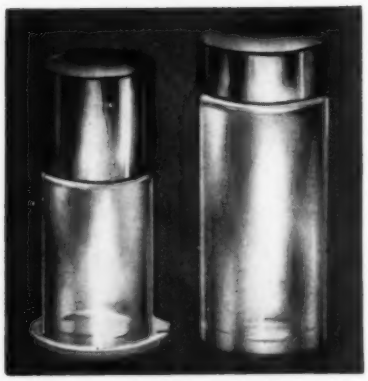


The container with the single push-up, push-back seal that permits direct filling without use of molds or foil. In 2 sizes. (Also available without push-up seal for ordinary use.)

## RICHFORD STICK COLOGNE BOTTLES

FOR HOME USE

FOR THE PURSE



*Write for Samples and Prices*

*TRADE MARK

**RICHFORD CORPORATION**

**251 FOURTH AVENUE, NEW YORK 10, N. Y.**

# NEW PERFECTION
## DROPPING PARTS
*meet EVERY*
## "Satisfaction Test"

| | |
|---|---|
| *QUALITY* | A-1 |
| *UNIFORMITY* | A-1 |
| *PERFORMANCE* | A-1 |
| *CLEANLINESS* | A-1 |
| *SERVICE* | A-1 |

**#1**

Non-rolling, extra-depth, Bakelite cap; thick-flange rubber bulb; Saftee-ball glass.

**#3**

Regular plastic cap; thin flange rubber bulb; semi-blunt glass.

**#4**

Metal cap; AMEKINE oil-resisting synthetic rubber bulb; blunt glass.

### *They're A-1 with your customers, too . . . assuring you repeat sales!*

When you sell a product that pleases and satisfies your customers, you're assuring yourself of their goodwill and continued patronage. New Perfection Dropping Parts help to give you that kind of a product. They are convenient, attractive, dependable —manufactured and assembled under careful and constant inspection to assure the highest possible quality.

**RUBBER BULBS** are supplied in many styles and colors. Oil-resisting AMEKINE synthetic rubber is used for oil preparations; natural rubber is supplied for other products.

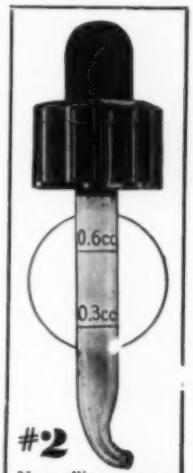
**CAPS** of plastic or metal can be furnished in a complete range of sizes and colors.

**DROPPER GLASSES** are available in a wide variety of styles and sizes; plain or CALIBRATED any color to mark specific dosages.

• • • • •

We can make up dropping parts to fit your own bottles or we can supply bottles in an attractive modernistic style in Amber, Blue, Green, or Clear glass, complete with dropping parts, in the following sizes: 2 cc, ⅛, ¼, ½, 1 and 2 oz.

• • • • •




**#2**

Non-rolling, extra depth Bakelite cap; thick flange rubber bulb; special bent glass (calibrated in color).

*Write for Samples and Quotations*

# PENNSYLVANIA
## GLASS PRODUCTS CO. INC.

**"Glass Goods of the Better Kind"**

430 N. CRAIG ST. • PITTSBURGH (13), PA., U.S.A.

# Chlorophylls

Manufactured in England by Stafford Allen & Sons, Ltd.,— established in 1833—whose high quality products are distributed throughout the world.

For many years a wide range of Chlorophylls has been produced which now includes

**CHLOROPHYLL "JJ"**

AT 60% SODIUM
COPPER CHLOROPHYLLIN
AND HIGHER CONCENTRATIONS.

*Samples are available and your enquiries are invited for regular deliveries over the next twelve months.*

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Cables: STAFALENS LONDON.

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Telephone: ULster 8-5800.
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# News...

### Coe, V.P. of Burroughs Wellcome

Fred A. Coe, Jr. has been appointed a director and vice-president in charge of distribution of Burroughs Wellcome Co. (U. S. A.) Inc., according to W. N. Creasy, president and general manager. He joined the company in 1945 and has served in different capacities since that time.

FRED A. COE, JR.

### N. J. Mach. Sues Seifert

Suit has been filed in the United States District Court for the Eastern district of Pennsylvania by New Jersey Machine Corp. against Maurice Seifert, individually, and as Dumatic Industries and Siefert Machinery Co. The suit is a civil action under the Patent Laws of the United States for infringement of certain patents relating to labeling machines.

New Jersey Machine Corp. is the manufacturer of a line of "no glue" labeling machines—the Pony LabelDRI, the LabelDRI Challenger, and the LabelDRI Champion. The defendant manufactures the Dumatic labeler, a semi-automatic thermoplastic labeling machine.

### Sagarin Institute Booklet

The Sagarin Institute for Olfactory Research, Inc. has published a booklet, "You, too, can take the gamble out of odor," which describes the principles and purposes of that organization.

### Lascoff Award to Dr. Fischelis

Dr. Robert P. Fischelis, secretary and general manager of the American Pharmaceutical Association, will be the 1952 recipient of the J. Leon Lascoff Award, according to C. J. Masterson, president of the American College of Apothecaries. He is the seventh individual to receive this Award since its establishment in 1944, the others being Sister M. Jeanette, Dr. Perry Foote, Charles V. Selby, Don E. Francke, Dr. Robert L. Swain and Dr. George Urdang.

The Award will be formally presented to Dr. Fischelis at the annual convention of the American College of Apothecaries which will be held in Philadelphia in August.

Donald H. Coale, Chicago office manager of J. T. Baker Chem. Co., right, receiving 25-year service pin and certificate from Ralph A. Clark, V.P. in charge of sales.

### SAACI Forms Welfare Committee

The Salesmen's Association of the American Chemical Industry, Inc. has formed a Welfare Committee whose purpose is to act appropriately for the membership upon cases of sickness or death among its members. The Committee is empowered to send out floral pieces, remembrance cards or resolutions to members or families of members.

For the year 1952 the Committee will be composed of Joseph M. Wafer, Industrial Chemical Sales division, chairman; Frank G. Fanning; and James G. Park, Enjay Co. Inc.

### Malayan Tin Bureau Formed

The tin producers of Malaya has announced the opening of an office in the United States to provide accurate information about tin production and marketing developments. The new information center, called the Malayan Tin Bureau, is located at 1028 Connecticut Ave., Washington 6, D. C., with Lynn W. Meekins as director.

### Kath Heads Strong Cobb Division

A. W. Kath, formerly with Eli Lilly & Co., has joined Strong Cobb & Co., Inc. as design and development engineer. He has also become president and general manager of the Kath Development and Manufacturing Corp., a newly organized subsidiary of Strong Cobb for the origination of new and improved pharmaceutical manufacturing and packaging machinery, according to George Miller, Strong Cobb president.

Mr. Kath, one of the country's leading pioneers in automatic machinery development, was chief engineer for over 25 years, and later vice-president, of the Arthur Colton Co. He holds approximately fifty patents in machine and package design.

A. W. KATH

### Central Pharmacal Expanding

The Central Pharmacal Co. is completing an expansion and streamlining program in its production and laboratory facilities, which is expected to be finished in a few months. This program has been made necessary, according to James L. Rogers, president, by the increased sales volume from 1946 through 1951. Annual sales and profits were more than three times greater in 1951 than in 1946, net worth was increased 190 per cent, and book value of common stock was up to 50.9 per cent.

### With Hirestra Labs.

Kenneth Child has taken over the Midwest territory of Hirestra Laboratories, Inc., and has started calling on accounts in that area, according to Steele C. Hutton, sales manager. He had formerly been sales supervisor for Johnson & Johnson.

Robert Littell has rejoined Hirestra as their representative for New York and New Jersey.

## Pfizer Advisory Board Meets

The Sales advisory board of Chas. Pfizer & Co., Inc. held its first meeting at the Park Sheraton Hotel, New York, on March 6 and 7, according to Thomas J. Winn, general manager of the antibiotic division. The meeting was attended by the most successful professional service representative from each of the 17 districts and by the most successful hospital representative from each of the two regions. The purpose of this gathering was to offer these men an opportunity to suggest new sales approaches or new service ideas to the sales executives of the Pfizer antibiotic division.

These meetings will be held in various cities around the country four times a year with seats on the Board reassigned for each session in accordance with changes in the "most successful" list. Among items which will be discussed in the future are promotional ideas, packaging suggestions, sales methods, current news about the drug industry, and competitors' activities.

Sales executives who attended the first meeting were Thomas G. Bradley, assistant general manager of the antibiotic division; L. J. Barrett, sales manager; George Guess, assistant sales manager; and John L. Davenport, executive vice-president of Pfizer.

MALCOLM SMITH

## Atlas Booklet in Spanish

Atlas Powder Co. has issued a 24-page Spanish edition of the manual on sorbitol, which describes the history and chemical structure of sorbitol and related Atlas Polyols, and the use of sorbitol for conditioning in cosmetics, tobacco, glue compositions, protective coatings, foods and pharmaceuticals.

The booklet is available without cost to those in the industry upon request to Atlas Powder Co., Wilmington 99, Del.

New 7,000 foot building of Pinwae Co., San Gabriel, Calif. Plant houses complete Laboratory supervised by Carl Westerburg, Chief Chemist, and experimental beauty salon.

## New Building, Bristol-Myers Div.

Robert B. Brown, president, Bristol-Myers products division, broke ground on March 14 for a new 4-story building to be located between their recreation and administration buildings on Long Ave., Hillside, N. J.

## Johnson With N. J. Machine

Art Johnson has been appointed sales engineer for New Jersey Machine Corp., with headquarters at the Chicago office. He is associated with Mal Smith, manager of the Chicago branch since 1950, and will cover the Midwest territory.

ART JOHNSON

## Ryall Named Pres., Drug Mfrs. Rep.

Henry Ryall of Ryall-Caskey Sales Co., was elected president of the National Association of Drug Manufacturers Representatives at the annual meeting of that association in New York on March 4. He succeeds Herb Slifer, Slifer-Weickel, Inc. At the same time, Malcolm Kerley, Clancy Sales, Dallas, was elected vice-president and Edward A. Matter, Herman J. Doughty & Associates, Chicago, was elected secretary-treasurer.

## Schering Expansion Plans

Schering Corp. plans to expand both its chemical and pharmaceutical manufacturing and packaging facilities at an estimated cost of about $1,400,000. The entire construction is expected to be completed by the end of 1953.

Two the of company's major manufacturing and warehouse buildings at its plant in Union, N. J., will be enlarged in order to provide additional facilities for manufacturing and packaging finished pharmaceuticals. The program also calls for the construction and equipping of a new chemical manufacturing building.

The expansion, according to Francis C. Brown, president, has become necessary in order to enable the company to increase the capacity of its plants for manufacturing, processing and packaging "Cortogen," its brand of cortisone, its non-barbiturate hypnotic called "Dormison," and its peptic ulcer drug, "Prantal."

Additional facilities will also be used for the manufacture of the new antitubercular drug, isonicotinic acid hydrazide. Schering will market its brand of the drug under the trade-mark name Ditubin.

## Williams & Semler Merge

J. B. Williams Co. and R. B. Semler Inc. have voted to merge the two firms. The resulting company will be operated under the name of the J. B. Williams Co.

Under the terms of the merger, which will be submitted to the stockholders of the two companies late in April for approval, present holders of Williams will retain the same securities. Stockholders of Semler will receive $3 in 5 per cent 10-year Williams debentures and one-fifth of a share of Williams common stock for each Semler share.

*Empress molded closures give your product sales appeal . . . convenience*

# Cap your best with beauty–a Molded Closure

YOU HELP your product gain popularity when you top off your package with a new, smart-looking molded closure by Owens-Illinois!

Several reasons explain why so many consumers prefer molded closures: they are attractive to look at . . . smooth to touch . . . delightful to use. And, they not only give your product an appealing look that attracts attention, but they won't rust, stick or corrode . . . give a more positive seal and reseal.

Owens-Illinois plastic closures are available in a wide range of colors and sizes.

There's no freeze on individuality and ingenuity to improve the appearance and efficiency of your package. So plan now to give your product sales-plus at the point of sale with a new Owens-Illinois package. Call our local branch office nearest you for more information.

CLOSURE DIVISION — OWENS-ILLINOIS GLASS COMPANY

TOLEDO 1, OHIO • BRANCHES IN PRINCIPAL CITIES

# Emulsifiers

Have You Received Your Copy of Our
New Booklet? Formulae · Technical Data

## Tegacid .... Tested . . . Trusted . . .

**Tegacid** — Glyceryl Monostearate—Acid Emulsifying. For anti-perspirant—deodorant creams, lotions and ointments—all greaseless, medicated formulations.

**Tegin .....** Glyceryl Monostearate—Self Emulsifying. For neutral greaseless creams, lotions, ointments, suntan creams.

**Tegin P....** Propylene Glycol Monostearate—Self Emulsifying. For greaseless creams—brushless shave, foundation, suntan: lotions—foundation, suntan, cosmetic stockings: ointments.

**Tegin 515..** Glyceryl Monostearate—Non Self-Emulsifying. Used in conjunction with auxiliary emulsifiers.

**Lanolin Absorption Bases**

## Protegin X . . . . . Iso-lan

For Creams, Lotions and Ointments

**PRESERVATIVES**

*Esters of Parahydroxybenzoic Acid*
TEGOSEPT M TEGOSEPT E TEGOSEPT P
BUTYL TEGOSEPT BENZYL TEGOSEPT

**ANTIOXIDANTS**

PROPYL GALLATE ETHYL GALLATE
Inhibit Rancidity, Preserve Flavor in Edible Fats

# GOLDSCHMIDT

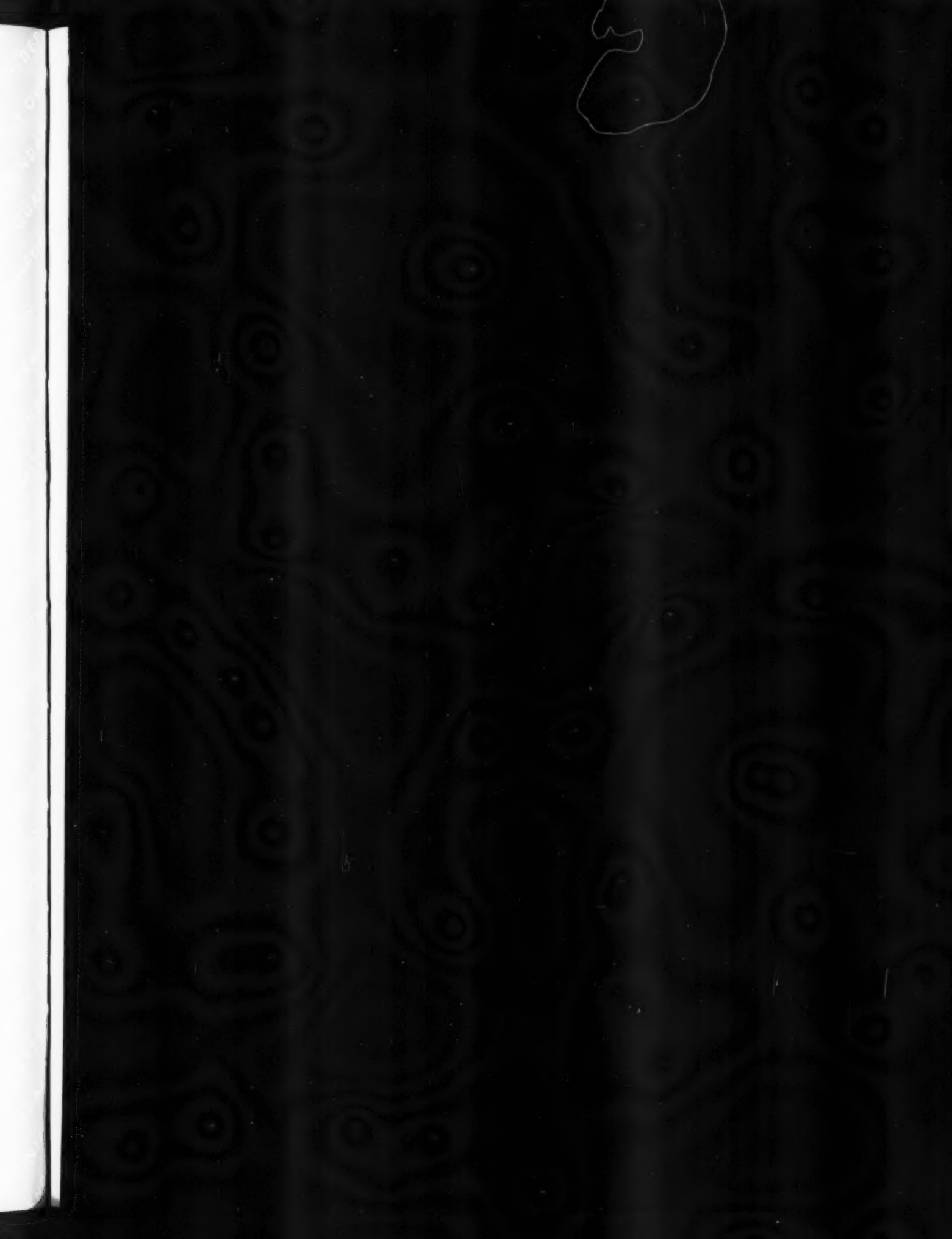
**CHEMICAL CORPORATION**

**153 Waverly Place, New York 14, N. Y.**

**SERVING INDUSTRY FOR A QUARTER CENTURY**

*SALES REPRESENTATIVES*

BOSTON · CHICAGO · LOS ANGELES · ST. LOUIS · MONTREAL · TORONTO



## MM&R 12th Annual Dinner

Magnus, Mabee and Reynard, Inc., held their 12th annual dinner for the Druggists Supply Corp. at the Hotel Statler, New York, on March 1, when P. C. Magnus, president, and J. B. Magnus and R. B. Magnus, vice-presidents, were hosts to more than 500 guests from the drug, military, business, advertising and publishing fields. Highlight of the evening was the appearance of the "incomparable" Hildegarde.

Head table at Magnus, Mabee and Reynard's 12th annual dinner for Druggists Supply Corp. at Hotel Statler, New York, March 1. Left to right: Rutherford James, Town & James; J. B. Magnus, vice-pres., MM&R; P. C. Magnus, president; and R. B. Magnus, vice-pres.

## Fitzpatrick Sets Up New Company

W. J. Fitzpatrick has organized a new sales and engineering company to be known as Fitzpatrick Engineering Co., Inc. It will supply Arthur Colton Co.'s filling, closing, packaging, tableting machines and heavy duty presses to the pharmaceutical, plastic, metal powder and other industries in seven mid-western states.

After 15 years as president of the W. J. Fitzpatrick Co., he is severing all company relationships to devote his full time to the new organization. He will direct the sales and service of the complete line of equipment manufactured by Arthur Colton and the products of Ertel Engineering Co.

Gordon W. Covey has been named by Mr. Fitzpatrick as one of his associates.

W. J. FITZPATRICK

## Fogleman, Ciba Advg. Art Director

James K. Fogleman, formerly with L. W. Frohlich & Co., has been appointed to the newly created position of advertising art director of Ciba Pharmaceutical Products, Inc., according to Vincent A. Burgher, vice-president.

## Proctor, Div. Head, Smith-Dorsey

Al Proctor has been appointed division manager for the Chicago division of Smith-Dorsey. The division includes the city of Chicago, part of Illinois, Indiana and Michigan.

## Cronheim Leaves Massengill

Georg Cronheim has resigned from the S. E. Massengill Co. as director of research.

## Reheis Opens New Chemical Div.

The Reheis Co., Inc. has opened a new organic chemical division climaxing three years of continuous research, according to Daniel H. Reheis, president. The new division headed by P. M. Brown, Jr., research chemist, is now producing the vegetable enzymes tyrosinase, ascorbic acid oxidase and invertase. Manufacturing facilities are being expanded to meet commercial requirements as they arise, and new personnel is being added to carry out the program.

P. M. BROWN, JR.

## Hambley Promoted by Parke, Davis

Gordon B. Hambley has been promoted to the new post of Canadian field supervisor of Parke, Davis & Co., according to Graydon L. Walker, director of U. S. and Canadian sales. He will assist J. H. Stephenson, manager of Canadian affairs.

## Oliver with Blue Line Chem. Co.

Horton H. Oliver, until recently St. Louis branch manager and western sales manager of Tilden Co., has joined the sales staff of the Blue Line Chemical Co.

## Vick Internat'l Plant in Manilla

Vick International, Inc., a subsidiary of Vick Chemical Co., has begun construction on a new $500,000 manufacturing plant near Manila, Philippine Islands, which is expected to be in operation by January, 1953.

The plant will be situated on a 70,000 square-foot landscaped plot, and the building itself will cover an area of 18,000 square feet. It will contain modern air-conditioned offices, a laboratory, rest rooms, cafeteria, and dispensary. A substantial labor force of trained Filipino men and women will be employed in assembling and packaging operations and will hold supervisory and technical positions.

In addition to producing the Vick line of proprietary medicines, the Manila plant is also scheduled to expand its operations for other Vick subsidiaries, such as the Wm. S. Merrell Co.

## Ciba Sales Conferences

Three national sales divisions of Ciba Pharmaceutical Products, Inc., eastern, central and western divisions, held conferences during February and early March in Washington, D. C., Chicago, and San Francisco. During the meetings, Vincent A. Burgher, vice-president; Dr. Frederick F. Yonkman, director of research; Frank H. Pratt, sales manager, and Paul W. Roder, advertising manager, reported to the representatives on research and sales activities, and discussed prospects for the coming year. Other speakers included Dr. J. Harold Walton, Dr. Richard H. Roberts, Douglas E. Ward, Karl Huber, A. W. Custer, and C. E. Munson.

## Heads Perf. Importers Ass'n

Maurice Levy, president of Mauvel, Ltd., has been elected president of the Perfumery Importers Association to succeed his brother, the late Benjamin E. Levy.

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Make the most of this high quality formic acid in your particular process. In the manufacture of better textiles, be sure you are taking advantage of the economies and improvements it effects in its many uses.

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DR. JOSEPH M. FELL

### Dr. Fell Joins Squibb

Dr. Joseph M. Fell has joined the medical division of E. R. Squibb & Sons as an associate medical director in charge of veterinary medicine, according to Dr. Geoffrey W. Rake, medical director. He will be responsible for pharmacological and clinical investigation and field studies of products for veterinary use. This includes both the development of new products and new uses for old products in the veterinary field.

### Sharp & Dohme Grants

Three Sharp & Dohme financial grants for medical research totaling $8,100 have been announced by Dr. William P. Boger, medical director. A $2,500 grant was made to the Foundation for Research in bronchial asthma and related diseases, Boston, in support of the work of Dr. Maurice S. Segal, clinical professor of Medicine, Tufts College Medical School, for laboratory and clinical investigation of Dapanone, a new bronchodilating agent.

The other two grants will be applied to clinical investigations of various substances throughout the year. A $2,600 grant was awarded to the University of Utah which will be applied to the support of work by Dr. M. M. Wintrobe. The other, $3,000, was awarded to the Newark Clinical Group Research Foundation, Newark, where clinical investigations will be conducted under the supervision of Dr. Arthur Bernstein.

### Magnus, Toastmaster at Dinner

Percy C. Magnus, president, Magnus Mabee & Reynard, Inc., and recently re-elected chairman of the committee on public health and welfare of the Chamber of Commerce of New York State, served as chairman and toastmaster for the Girls' Town, Inc. dedication dinner at the Waldorf-Astoria Hotel in New York March 13.

### Dow Ups Methocel Distribution

The Dow Chemical Co. has reached agreement with seven distributing firms throughout the country to handle Methocel sales, following recently increased facilities of the product (Dow methylcellulose). On the West Coast, Methocel will be handled by Braun-Knecht-Heiman of San Francisco, Braun Corp. of Los Angeles and by the Van Waters & Rogers Co., in Portland, Seattle and Spokane.

In the Midwest, Innis Speiden & Co., Inc., Chicago; Merchants Chemical Co., Chicago, Cincinnatti and Milwaukee; and G. S. Robins & Co., St. Louis, will handle the distribution. Innis Speiden, New York and Gloversville, N. Y., and J. J. Leidy & Co., Baltimore, will join George Mann & Co., Inc., Providence, in the Eastern distribution of Methocel.

### Hill Aids in Controllership Report

J. K. Hill, vice-president and treasurer of the Norwich Pharmacal Co., aided in the preparation of a report recently completed by the Controllership Foundation, Inc., entitled, "The Impact of Budgets on People". The report tells how the conflicting reactions of budget personnel and factory supervisors can be ironed out and replaced by cooperation. Copies may be obtained at the offices of the Foundation, 1 East 42nd St., New York for $1.50 to Controllers Institute members and $3 to all others.

The survey project was conducted for the Foundation by the School of Business and Public Administration of Cornell University.

### Miss Madden Completes 50th Year

Anna B. Madden was honored with a testimonial dinner on March 20, at the Fort Henry Club, Wheeling, W. Va., marking the completion of 50 years' service with Sterling Drug Inc., according to E. L. Hoskins, president of Cook-Waite Laboratories, Inc., a Sterling subsidiary. A group of Miss Madden's fellow employees, who have been associated with her longest, joined with executives of Cook-Waite Laboratories and of the parent firm in observing the event. Among those attending, in addition to Mr. Hoskins, were Arthur Stifel, member of Sterling's board of directors, and W. H. Burgard, vice-president in charge of production at the Wheeling plant.

Sixty-six years old, Miss Madden completed her 50th year of service on January 11, 1952, becoming the seventh employee in the organization to attain that mark. She will continue to work with the company.

### Albro with Sterling-Winthrop

Dr. Lewis P. Albro has joined the organic chemistry staff of the Sterling-Winthrop Research Institute as research associate, according to Dr. M. L. Tainter, director. He will work with Dr. Johannes S. Buck, associate director of the chemistry division.

### Casey, Merrell Div. Sales Mgr.

Allen Casey has been appointed southeast division sales manager of the Wm. S. Merrell Co., according to Frank T. Jacobs, director of marketing, and will make his headquarters in Atlanta.

Annual sales conference of J. T. Baker Chemical Co., which was recently held in Phillipsburg, N. J. Front Row, left to right: Robert Riley, John Hagins, Joseph Augello, Gerard Nelson, William Bretschneider, Ralph Clark, G. Byron Hafer, Vernon Wilbourn, H. Bruce Rasmussen, and Charles Slater. Middle Row: Herman High, William Norton, John Dillworth, Newell Rand, W. Chapin Harris, Robert Blomquist, W. Glenn Wunderly, Fisher Gaffin, Donald Coale, Earle Hodgdon, and Warren Schumacher. Top row: Donald Wildrick, Raymond Entringer, Graham Mitchell, William Headley, L. F. Simmons, Stewart Cowell, Bruno Gheradini, Harry Morgan, Charles Clower, Weldon Alpaugh, and James Stewart.

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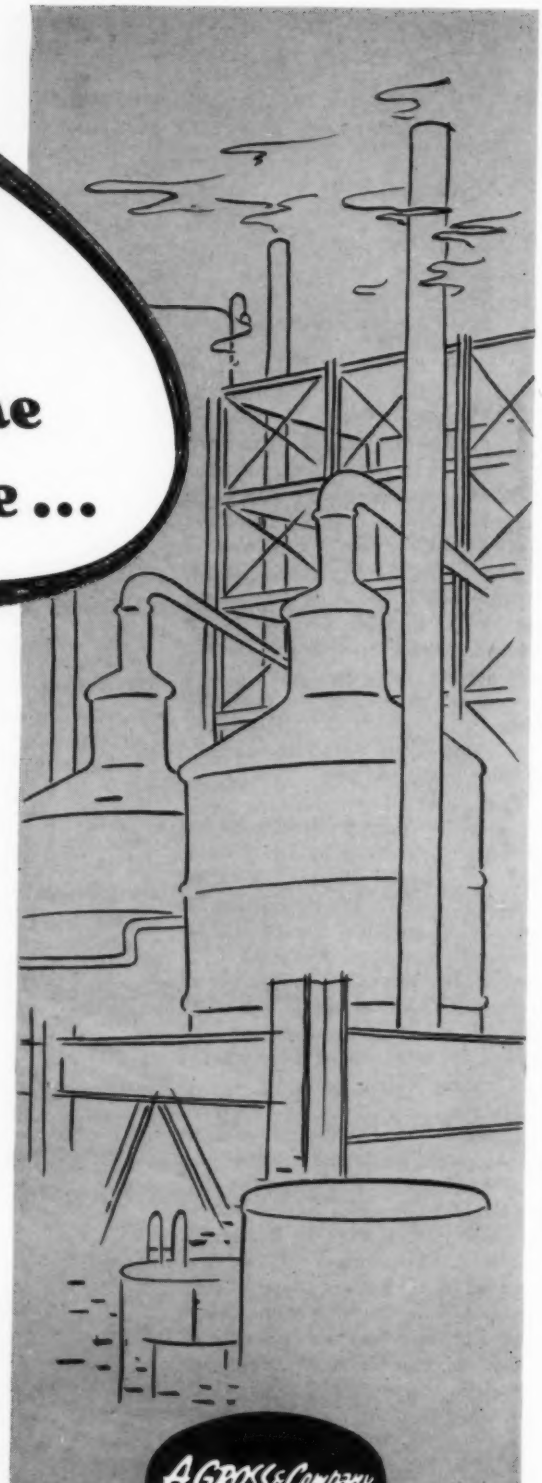


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Thompson Hayward Chemical Co.
Kansas City 3, Mo. (and branches)
Ducros & Co.
Cleveland 15, Ohio
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Baker Industrial Oils Co.
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Spartanburg, S. C.
Drogas Y Productos Quimicos
Mexico 8, D. F.
Braun Corp.
Los Angeles 21, Calif.
Atlantic Equipment & Chemical Co.
Atlanta, Ga.

H. A. STRATE

BEN T. HOWILER

JOHN R. BIEDERMAN

HENRY S. GODSHALL

### Strong Cobb Executive Promotions

H. A. Strate has been made vice-president and director of sales, Strong Cobb & Co., Inc.; Ben T. Howiler has become vice-president, private formula division; John R. Biederman has been appointed director of professional products division; and Henry S. Godshall has been stepped up from eastern sales manager to assistant vice-president, private formula division, according to George Miller, president.

### Popper Distributing REJAFIX

Popper & Sons has announced that it is now distributing the REJAFIX marking and printing machines in the United States and declares that the machines will handle any or all portions of a labeling problem from the imprinting of a control number or one line of text to the complete label. They are the only machines which will, by use of metal types or cuts, mark, print or decorate any material such as glass, plastics, ceramics, wood, rubber, textiles, metal or paper. For additional information, write to Popper & Sons, Inc., 300 Fourth Ave., New York.

### Emelin Named Columbia Trustee

Arthur C. Emelin, president of Schenley Laboratories, Inc., has been elected a member of the board of trustees of the Columbia College of Pharmacy. He received his Ph.G. from the College of Pharmacy in 1923 and a degree in pharmaceutical chemistry from the University in the following year.

### Kimbriel Appointed V.P., Lilly

Harry A. Kimbriel has been appointed vice-president in charge of marketing for Eli Lilly & Co., succeeding Earl S. Retter who has retired. Mr. Retter will continue as a member of the company's board of directors.

### Named Div. Managers of Breon

Harry W. Fowler and Harold M. Nelson have been advanced to divisional managerships of George A. Breon & Co., according to Graham Erdwurm, president. Mr. Fowler is managing the Richmond division and Mr. Nelson heads the Chicago one.

These announcements were made at the recent national conference of divisional managers of the company held at Harrisburg and Myerstown, Penna. During the meeting Clyde A. Johnson, manager of the Kansas City division, was presented with the Breon President's Plaque award. Managers attending the meeting were G. L. DeHaven, Seattle; S. A. Planchard, Dallas; Mr. Johnson; L. T. Hunt, Columbus; Mr. Nelson, Chicago; Mr. Fowler, Richmond; T. E. Landry, Atlanta; and S. W. Smith, Philadelphia.

### Clarkson to Design Turkish Plant

Ronald Clarkson, tablet consultant, has been retained by Eczacibasi Laboratories, Istanbul, Turkey, to design their new pharmaceutical plant. The company will manufacture a full line of ethical pharmaceutical products consisting of tablets, ointments, liquids, ampuls and antibiotics. When completed, it will be one of the largest of its kind in the Near East.

### Atlas Lowers Sorbitol Prices

The price of Atlas "Sorbo" (70 per cent d-sorbitol solution) was reduced one-half cent per pound in tank-car quantities on March 24, according to the Industrial Chemicals department, Atlas Powder Co. Other grades of Atlas sorbitol and related polyols were reduced from ¼c to 1c per pound at the same time. This is the fourth price reduction since 1946 when the present process of production was first operated.

### Fragrance Found. Annual Meeting

The third annual meeting of the Fragrance Foundation will be held on Thursday, April 24 in the Cotillion Room at the Pierre Hotel, New York. Starting with a reception at noon, the meeting will consist of luncheon and an afternoon program, to which all members of the fragrance industry are invited.

J. I. Poses, Parfums D'Orsay, and M. J. Middleton, Parfums Ciro, chairmen of the Program and Quarterly Luncheon Committees, have planned an interesting program. Samuel Rubin, president of the Foundation, and president of Faberge Perfumes, will give an annual report. Frazer Sinclair, *Beauty Fashion*, treasurer, and Miriam Gibson French, executive director, will report on the year's progress.

Reservations may be made through the Fragrance Foundation offices, 9 Rockefeller Plaza. The price of tickets for luncheon and meeting is $8.50 each.

### Cragwall, President, Gen. Box

N. W. Embry has been elected chairman of the board of the General Box Co., succeeding E. E. Ames, who will continue to serve as a director. J. A. Cragwall, vice-president and manager of the Kansas City division, has been elected president, and Roy E. Welch, assistant division manager, has been promoted to manager of the Kansas City division.

At the same time, five directors were unanimously re-elected to three-year terms, including J. A. Cragwall, D. B. Forrester, D. F. Hahn, S. F. Talbert, and C. C. Watkins. W. M. Swenson was elected a director for one year to fill the vacancy caused by the death of Ralph Cunningham. Brooks Wynne was elected assistant secretary and attorney of the company.

# Amino products with a future

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Glutamic acid has long been known to be a major constituent of body protein. Recently interest in this amino acid has grown due to clinical findings which show large quantities of glutamic acid to be present in the brain. Today clinical research is being carried out by numerous investigators, and new strides are being made in the pharmaceutical and medical application of glutamic acid and glutamic acid hydrochloride.

Bulk quantities of both these products may be procured from International Minerals & Chemical Corporation, leaders in the research and production of these amino products.

**International Glutamic Acid** (Pharmaceutical Grade)
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This booklet provides a critical summary of progress to date in the study of glutamic acid. Price lists, complete specifications, and tests illustrating the purposes and high purity of International's Glutamic Acid and Glutamic Acid Hydrochloride are also available upon request.

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Pharmaceutical Department

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### Erdwurm Heads George A. Breon

Graham Erdwurm, associated with Sterling Drug Inc. since 1947, has been elected president and a director of the subsidiary, George A. Breon & Co., according to James Hill, Jr., chairman and president of Sterling. Also announced was the election of Dr. Clyde W. Geiter, vice-president and medical director of the Breon Co., to the firm's board of directors, and the appointment of Frederick O. S. Spencer as vice-president in charge of sales.

GRAHAM ERDWURM

### Hypo-Allergenic Sets Presented

Miss Colorado of 1951 (Jo London), on behalf of Marcelle Cosmetics Inc., recently presented complimentary Marcelle Hypo-Allergenic Cosmetic sets to pharmacists attending the Annual Druggist Seminar held at the Albany Hotel in Denver. The Annual Seminar, sponsored by the Rocky Mountain Medical Representatives Society, the College of Pharmacy of the University of Colorado and the Colorado State Board of Pharmacy was conducted once a week for six consecutive weeks, climaxed by the annual banquet and entertainment.

### Join S & D Research Staff

Normand E. Brindamour and Dr. Nicholas W. Solonen have been appointed to the Sharp & Dohme research staff, according to Dr. L. Earle Arnow, director of research. Mr. Brindamour will work in pharmaceutical research, and Dr. Solonen, in pharmaceutical development.

### Roberts Elected Glyco V.P.

William H. Roberts, Jr., has been elected vice-president in charge of operation, by the Glyco Products Co., Inc. Prior to joining Glyco in 1947 as general plant manager, he had been associated with Hooker Electrochemical Co. and with E. R. Squibb & Sons.

### Sellars Heads YPO

Richard B. Sellars, president of the Ethicon Suture Laboratories, Inc., a Johnson & Johnson subsidiary, was elected president of the Young Presidents' Organization at the group's second annual convention held recently at Boca Raton. He succeeds Ray Hickok, Hickok Manufacturing Co. Harold M. Athshul, president of Ketchum & Co., wholesale drug house, was elected vice-president in charge of YPO's eastern area.

FREDERICK O. SPENCER

### J. H. Day Catclogue

The J. H. Day Co., Cincinnati, has published a 15-page catalogue, Bulletin No. 382, on chemical processing equipment. It may be obtained by contacting the company in that city.

### Scott, Med. Director at Bristol

Dr. Charles C. Scott has been appointed medical director of Bristol Laboratories Inc., according to Frederic N. Schwartz, president.

### Revord in New Sterwin Post

John A. Revord has been appointed to the newly created post of district manager of the Chicago office of Sterwin Chemicals Inc., according to P. Val. Kolb, president. He has been associated with the company since 1943 as a Sales representative covering the midwestern states.

In his new capacity Mr. Revord will supervise sales activities on behalf of Sterwin's products in North and South Dakota, Minnesota, Wisconsin and Michigan and parts of Indiana, Ohio, Illionis, Iowa and Nebraska.

His office is in the Chicago headquarters building of Sterling Drug Inc., of which Sterwin is a subsidiary.

### Louise Fabish, Inc. Expands

The firm of Louise Fabish was incorporated on February 19 and is now known as Louise Fabish, Inc. Officers are Arthur Fabish, president; Mrs. Louise Fabish, vice-president; and John W. Briggs, of 4024 Grand Ave., Des Moines, Iowa, who has joined the firm as treasurer-secretary.

The policy of the corporation will remain the same, but the activities will be enlarged. A branch has already been established in Des Moines for the Midwest, for distribution of their products in that area, as well as in the South and West.

### Foragers April Meeting

Inspector Peter Terranova, chief of the Narcotic Squad, New York, will be guest speaker at the April 30 luncheon meeting of the Foragers of America at Toots Shor.

Robert B. Brown, president of Bristol-Myers products division, breaking ground last month for new 4-story building at Hillside, N. J. Left to right: S. F. Bloyer, W. M. Bristol 3rd., O. E. Johnson, S. V. Rettino, W. F. Schultze, Mr. Brown, E. W. Love, Milton Hull, Sr., and Howard McMurray. This building will expand present plant facilities.

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### S & D Sales District Divided

Sharp & Dohme, Inc., has divided its Kansas City-St. Louis sales district into two separate districts, according to C. B. Pyle, director of field operations. E. F. Schwab, who has been sales manager of the combined district, was appointed sales manager of the Kansas City district at the time of the change on March 1. Herman H. Hill, formerly sales supervisor in St. Louis, was simultaneously named sales manager of the St. Louis district.

Under the new arrangement, the Kansas City district will service customers in Arkansas, Iowa, Kansas, Nebraska, Oklahoma and part of Missouri. The St. Louis district will service customers in Illinois, Indiana, Kentucky and the remaining area in Missouri.

### Stillwaggon in Export Post

Elmer G. Stillwaggon was promoted to manager of the export department of Whittaker, Clark & Daniels, Inc. on February 1, succeeding Louis Storch, who has become Whittaker's import manager. He had been a member of the department for four years, prior to which he had been traffic supervisor and purchasing agent for Sydney Ross Co., export division of Sterling Drug.

Drawing of Abbott Laboratories' new Los Angeles branch as it will look when completed late this year. Branch was established in 1932. John S. Miller is branch manager, and W. P. Chapin, office manager. One-story structure has 24,800 square feet of floor area.

### Poole Joins Bristol Labs.

Frederick T. Poole has been appointed director of public relations of Bristol Laboratories Inc., according to Frederic N. Schwartz, president.

### Dr. Olney with LeGear Med. Co.

Dr. J. F. Olney has joined the research department of the Dr. L. D. LeGear Medicine Co., St. Louis, as director of veterinary service. He had been Associate professor Animal Pathology at the University of Nebraska for over twenty years doing diagnostic and research work in swine, poultry and turkey diseases.

### Chicago Cos. Chemists Meeting

The Chicago Society of Cosmetic Chemists will hold "Ladies Night"at their April 29 meeting in Henrici's Restaurant. Celeste Caryle, nationally known consultant on style, beauty and charm, will discuss "Props for Your Poise." Dinner will be at 6:30 p.m.

### Seitz Promoted by Vick

Richard M. Seitz has been promoted to the newly created position of director of Market Research, Acquisitions division, Vick Chemical Co., according to H. R. Marschalk, vice-president in charge of that division.

ELMER G. STILLWAGGON

DR. J. F. OLNEY

RICHARD M. SEITZ

### Agent for Morehouse Industries

Pacific Coast Chemicals Co. of San Francisco has been appointed exclusive Northern California agent for Morehouse Industries, Los Angeles, according to George E. Missbach, Morehouse sales manager. Frank G. Collins will be in charge of Speedline sales and service for Pacific Coast Chemicals.

### Bashwiner With Hutchinson & Co.

Henry J. Bashwiner has been appointed sales representative for D. W. Hutchinson & Co. Inc. and will cover the Metropolitan New York area.

### Mozley Promoted by Ciba

Cecil R. Mozley, sales representative of Ciba Pharmaceutical Products, Inc. since 1932, has been promoted to district manager, according to Vincent A. Burgher, vice-president. He replaces Ben A. Bentley who was recently appointed Ciba's eastern division sales manager.

### Dingwall Joins Arrow

John Dingwall has been added to the sales force of the Arrow Manufacturing Co. and will cover the New York, New Jersey and Connecticut area.

### Dr. Joliffe Heads Vitamin Found.

Dr. Norman Joliffe, director of the Bureau of Nutrition of the New York City Department of Health, has been named president of the National Vitamin Foundation, succeeding Dr. E. Gifford Upjohn. Homer C. Fritsch, executive vice-president of Parke, Davis & Co., has been named chairman of the board, succeeding J. Paul Folsom.

### Straube with Schering

Edward Straube has been appointed credit manager of Schering Corp., according to M. J. Fox, Jr., treasurer.

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# METHOCEL ...a superior synthetic gum!

Inert binders have many uses throughout the drug and cosmetic industry. In tablets, leg make-up and many other applications, a good binder is of prime importance.

Methocel (Dow Methylcellulose, N. F.) offers many advantages, not only as a binder, but also as a thickener, film former, emulsion stabilizer and suspending agent:

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A chemical of ever-growing usefulness, Methocel is the ideal synthetic gum for many drug and cosmetic uses. If you have not yet tried it, write Dept. ME-106 for your free, experimental sample of Methocel, *powdered*. Please state viscosity desired.

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INDISPENSABLE TO INDUSTRY AND AGRICULTURE

### Join Executive Staff, Plax Corp.

P. J. Murphy has been appointed sales manager of blownware products and C. N. Sprankle, sales manager of extruded products, according to Denton Anderson, general sales manager of Plax Corp. Mr. Murphy was manager of the closure and plastics sales division of the Owen-Illinois Glass Co. for the past 17 years, and Mr. Sprankle was formerly vice-president in charge of sales for the Sandee Mfg. Co. prior to their new appointments.

P. J. MURPHY

### Strong, Cobb, Amer. Chlorophyll

American Chlorophyll, Inc., Lake Worth, Fla., is being merged with Strong, Cobb & Co., Cleveland, according to Strong, Cobb President George Miller, and American Chlorophyll President Cecil P. Young, April 25 having been named as the date for stockholders of both companies to ratify the terms of the merger. American Chlorophyll stockholders will be offered 1⅓ shares of Strong, Cobb common stock for each share of American Chlorophyll common stock.

According to Mr. Miller, the merger will greatly facilitate the development of chlorophyll by putting behind the chlorophyll concern the wide research facilities and manufacturing techniques of Strong, Cobb, and plans are already being laid for an increased program of investigation of the drug in their laboratories and outstanding schools of medicine. Mr. Miller feels that the real future of chlorophyll lies in the direction of its use by the medical profession for the healing of body tissue, certain types of asthma, stomach ulcers, prevention of dental cavities, and those forms of anemia which do not respond to iron medication alone.

Several new sources of chlorophyll are under investigation by American Chlorophyll, and additional equipment and improved extraction methods are expected to double chlorophyll output.

### Revson Price List Available

R. F. Revson Co. has published their latest price list which is available on request to the company at 243 West 17th St., New York. The list includes uncommon materials which the company has available in small quantities. These are normally available only in manufacturers' minimum packages, which, according to the company, are in most instances, much larger than many clients require.

HUGO BELL

### Bell Elected Bourjois President

Hugo L. Bell, formerly executive vice-president and general manager, was elected president of Bourjois, Inc. and Barbara Gould, Inc. at the last meeting of the board of directors. He had previously been vice-president and a director of Lehn & Fink Products Corp. for over twenty years.

### Gair Acquires Amer. Coating Mills

Robert Gair Company has acquired the American Coating Mills Division of Owens-Illinois Glass Company, according to Gair President George E. Dyke. The business will be conducted by American Coating Mills Corporation, a new wholly owned Gair subsidiary.

### Lilly Bulk Sales Division

Eli Lilly & Co. has announced establishment of a bulk sales division. John F. Lee, who has served in several capacities in the Lilly marketing organization for thirteen years, has been named to head up the new unit.

### Snow on Eastern Trip

G. Preston Snow, president of Hyland Labs., and vice-president of the American Pharmaceutical Manufacturers' Association, combined a March Business trip to the East with the annual meeting of the A. P. M. A. in Boca Raton from April 7 to 9. He spent a week at Hyland's eastern branch in Yonkers, N. Y.

### Schenley Advances Gilbert

George R. Gilbert, export manager of Schenley Laboratories since 1950, has been named vice-president in charge of international operations.

### A. R. Bostock

A. R. Bostock, 58, branch house superintendent of Parke, Davis & Co. in the United States and Canada, died at Jennings Hospital in Detroit on March 24 following a heart attack. He had been in charge of improvements and new construction at Parke-Davis' 26 branches in this country and four in Canada since September, 1945.

He is survived by his wife, Mrs. Nora Bostock; a son, Arthur; a daughter, Mrs. Harold F. McAuley; and three grandchildren.

### Walter L. Fretz

Walter L. Fretz, representative of Dodge & Olcott, Inc. for fifteen years, died at his home March 5 after a brief illness.

### Herbert A. Hughes

Herbert A. Hughes, West Coast representative for Wm. J. Stange Company, Chicago, died March 15, just three days before his planned retirement. He was 59 years old.

### Benjamin E. Levy

Benjamin E. Levy, 74, chairman of the board of Charles of the Ritz, Inc., and formerly chairman of Coty, Inc., and president of Coty International Corp., died Mrch 5 at the Medical Arts Hospital. He succeeded the late Francis Coty as head of the Coty interests in this country and abroad in 1934. He resigned from that position in 1940 but retained directorships in the concerns, having been succeeded by Grover A. Whalen, chairman of the Mayor's Reception Committee in New York. Mr. Levy later became associated with Charles of the Ritz. At the time of his death he was president of the Perfumery Importers Association.

He is survived by his brother, Maurice.

### Henry I. Minick Sr.

Henry I. Minich, Sr., one-time vice-president of Johnson & Johnson, died March 22, in Tarrytown, N. Y. He was 62 years old. At the time of his death, Mr. Minich was president of the Tensolite Corporation, Tarrytown, manufacturers of plastic insulation for electrically heated flying suits.

# Management Forum

*by Francis Chilson*
INDUSTRIAL CONSULTANT

### The Overhead Department

From time to time I have deplored the growth in the number of clerical and office jobs that productive and sales people have to support. But it was only recently that I got hold of some specific figures from a nationwide study made by Burroughs Adding Machine Co., which illustrate how great the burden of overhead has become. According to these figures there was, at the beginning of the century, one office worker for every thirty production workers. Fifteen years later the ratio was one to ten. Now it is approximately one to two and one half. Pretty soon there will be more clerical workers than producers. It actually is that way now in some highly mechanized plants.

Of course the increasing mechanization of industry made a trend like this inevitable and the service elements growing out of the use of machines and gadgets naturally shifted personnel from productive to service functions. But it makes my teeth grind when I realize that such a large part of this load of clerical personnel is made necessary by the complex records made necessary by federal, state and local laws relating to taxation of all kinds and to various governmental controls for which reports must be made and records kept.

But a lot of the growth in clerical burden is caused by the bookkeepers—the comptrollers, the budgeteers, who will insist on keeping records to shave miniscule savings off pennies while forgetting so often the dollars it costs them to do so. I am well aware that no modern business can be operated without essential records. But it gripes the hell out of me to go into a plant and find, as I have so often, three divisions keeping essentially the same records, simply because the productive divisions of the business, *i.e.* manufacturing and selling, can't persuade the accounting department to keep records in any way but the way accountants like to keep them. So, since they can't get management information when they want it, the operating divisional heads set up their own records.

And you can hardly blame them when you so often find budget and other accounting reports being distributed from six to twelve weeks *after* the periods they are supposed to cover. The accountants always have the same alibi: they haven't enough help. If they had their way there'd be nobody in business but bookkeepers.

### Complacency

The greatest barrier to efficiency in plant operations is complacency. It is, indeed, the greatest barrier to efficiency in all business operations. The complacent executive is like a man under the influence of a soporific and wearing blinders at the same time. He feels so content with what he has accomplished that he is blind to what actually is going on around him.

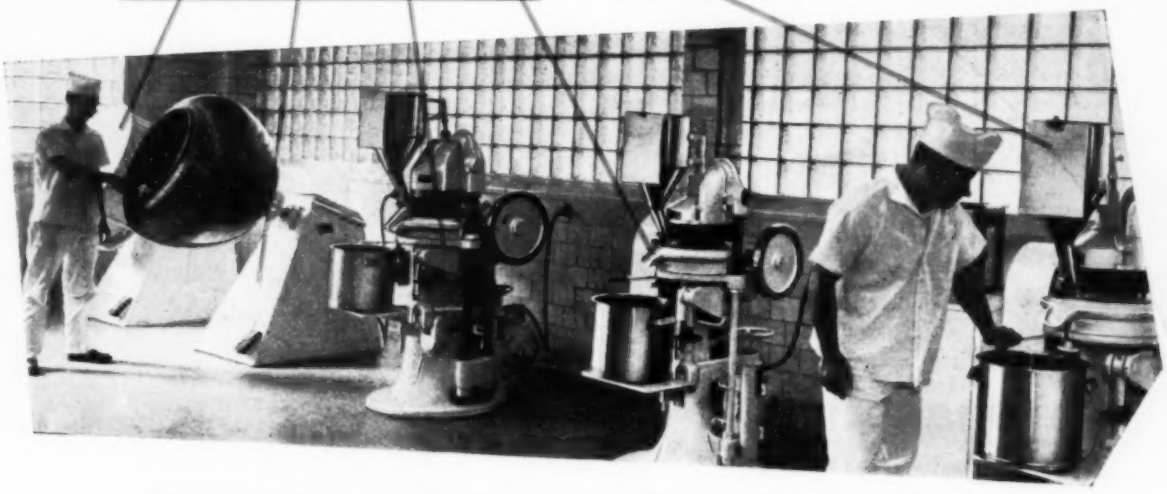
Now, to destroy that feeling of complacency in plant managers, engineers, salesmanagers and company presidents whom I happen to be working with professionally, I long ago developed what I call privately the "shock treatment", to wake them up and implant that feeling of inadequacy without which no creative accomplishment is possible. Some of my clients, who suddenly and rudely have been jolted into complete consciousness, have called my shock treatment a lack of tact. Whatever it is it works. And a book could be written about the stimulating effect of "tactlessness" in business operations when suddenly applied to the right people at the right time. Invariably the right people are the top people and the right time is when Mr. Bigshot, feeling complacent to the point of smugness, asks your opinion, fully expecting you to confirm and praise his accomplishments whatever they may be.

I remember once being told by the vice president of a large company that his plant was the most efficient in the industry. (It seems that up to that time all the plants visited by him and his assistants were far worse than his own, and since a very considerable number of plants had been visited, he arrived at the wrong conclusion by examining the wrong samples.) Later when I visited his plant at his request he asked me at the conclusion of my visit what I thought of the plant. He was

# Modern Plant...
# Diffused Light...
# Air-Conditioned...
# Stokes-Equipped

38,000 square feet of floor space is devoted to the manufacture of vitamins and related pharmaceutical products at the new Walker Laboratories plant in Mt. Vernon, N. Y. Laboratories and processing room are air-conditioned and dehumidified . . . Diffused light reaches all parts of the plant through exterior glass block . . . Batteries of Stokes rotary tabletting presses, coating pans and polishing heads are finished in ivory tone . . . All of which combine to provide a fine example of the pharmaceutical house of today. 720,000 vitamin tablets is the plant's daily capacity.

All Stokes tabletting presses, whatever the size of tablet or speed of operation, produce tablets perfect in size, weight, density and finish.



Advantages to the many pharmaceutical firms using Stokes equipment include high-speed production, low-cost operation, uniformity of product and notable dependability.

Punches and dies for Stokes tabletting presses, including carbides for long runs or abrasive materials, are made in the Stokes plant. Ready for mailing is a new booklet, "How to Save Money on Punches and Dies."

**STOKES**

STOKES MAKES
Plastics Molding Presses,
Industrial Tabletting
and Powder Metal Presses,
Pharmaceutical Equipment,
Vacuum Processing Equipment,
High Vacuum Pumps and Gages,
Special Machinery

F. J. STOKES MACHINE COMPANY, 5532 TABOR ROAD, PHILADELPHIA 20, PA.

# Here's Why

**MORE TUBES ARE FILLED ON COLTON MACHINES THAN ON ANY OTHER...**

COLTON TUBE FILLER

COLTON GEAR-TYPE TUBE FILLER

Brilliant engineering in Colton's new equipment has sent it rocketing to new heights of leadership in the tube-filling field—where Colton has always led.

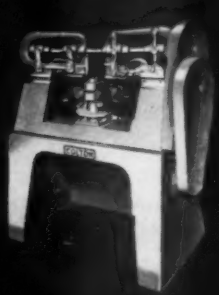
The new units provide exact accuracy of measure, continuous high speed, quick cleaning, quick adjustment to new sizes and change-over to cans, tubes or jars, complete versatility embracing liquids, semi-liquids, pastes from water-thin to thick and ropey.

Our new condensed catalog of Packaging Equipment presents sixteen cost-cutting items. We suggest you write for it.

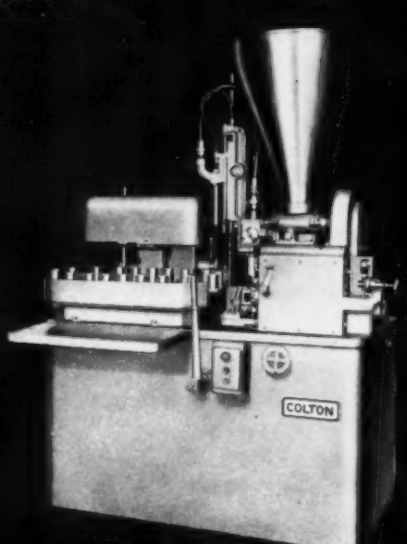
**ARTHUR COLTON COMPANY**

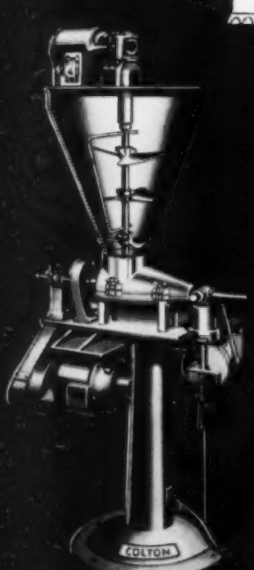
DIV. SNYDER TOOL & ENGINEERING COMPANY
3447 E. LAFAYETTE • DETROIT 7, MICHIGAN

COLTON POWER TUBE CLOSER AND CRIMPER



COLTON AUTOMATIC TUBE FILLER AND CLOSER




COLTON WORM-TYPE TUBE FILLER

wearing a self-satisfied smile and I knew he expected lavish praise. So I let him have it. I told him it reminded me of an outhouse. (Only I didn't use the word "outhouse". I wasn't so polite.) He looked stunned. Then I supported my statement with the facts I had observed in my brief trip through the plant. The outcome was a complete rejuvenation of the whole setup. The company is now four times as big as it was then and still is growing.

Engineers have boasted of special machines and special processes often adding "nobody else in the trade has anything like this." Usually it turns out that nobody else *is* using that type of equipment or process; they're way ahead; they have a damned sight better equipment and processes. Invariably it turns out that the special secret equipment or process actually is being used by fifteen or twenty competitors.

The shock treatment works particularly well in personnel relationships. Very frequently I find the president of the company blindly believing in some oily toad who knows how to slant information so that it will always redound to his personal credit and who knows how to build a wall around the president so that unvarnished and unretouched facts cannot penetrate through to him. In some instances I have found men like these in key places who were not merely disliked, but thoroughly hated by every executive in the organization. Sometimes the president becomes so completely sold on one stooge that he will obdurately refuse to listen to any criticism of the fellow whatever and may even resent and reject it forcefully.

In cases like this it usually will be discovered that the protege was personally selected by the president for a particular post and therefore any criticism of the individual however factual is taken by the president as implied criticism of his judgment in selecting men. (Everyone likes to think that his judgment in selecting men is infallible.) When the shock treatment is applied in cases like this it invariably causes Mr. Bigshot to get sore. He will tell me that my judgment is good excepting in personnel matters.

Nobody likes to have his pet bunny called a jackass. I can get away with it because—thank God—I am nobody's employee and can call a jackass a jackass without having to worry about the effect of my forthrightness on my job—without having to worry about the possibility that the stooge will retaliate someday by sticking a knife in my back. Many key men owe their jobs to my recommendations—and I'm not smug enough to say I have always been right—but I can say that in some instances they owe their jobs to the fact that I was able to knock the blinders off the boss's eyes. I do insist, that whatever their jobs, I can always detect bootlickers. I can smell 'em.

### The Worm Turns

The Papercraft Corporation, Pittsburgh paper products manufacturer, was awarded a verdict of $29,500.00 in Chicago's Federal Court on February 4 by a jury in a breach of contract suit against the George S. May Company, consulting engineers. The Papercraft Corporation had asked the court for $30,000.00 as damages it alleged to have suffered as a result of a sales engineering agreement which it made with the May Company.

***The following information is supplied by manufacturers of the equipment described and claims made below by these manufacturers are passed along for what they are worth. Presentation of such notice in this department is not to be taken as endorsement of the claims or of the equipment.***

### Select-O-Weigh

Through application in a novel manner of a simple servo-mechanism, extensively used in processing controls, the Richardson Scale Company, Clifton, N. J., has developed truly automatic cumulative and consecutive weighing. Potential uses of Select-O-Weigh are practically unlimited throughout the chemical and processing industries, as Select-O-Weigh places automatic weighing methods well within the range of even small plants by having one automatic scale accomplish the same work which formerly required up to twelve separate scales. Select-O-Weigh guarantees complete flexibility in formula variation for all proportioning operations—from the largest to the smallest.

The heart of the Select-O-Weigh is a very simple, time-proved, foolproof, electronic circuit with no arcing contacts, making it perfectly suited to explosion-proof installation. A standard type Richardson Automatic Scale is used as the weighing element in the system, with a pendulum dial scale acting as the force-measuring component. Great versatility of operation as well as a wide range of capacities are available for proportioning applications at relatively low cost as a result of the great number of possible dial scale settings

The Richardson Select-O-Weigh system operates in the following manner. A master control panel for any particular system is built to include as many setting dials as there will be ingredients in formulae handled —one dial for each ingredient. (It is possible to operate a Select-O-Weigh system for from two to twelve ingredients.) The scale operator, who may be located in any part of the plant remote from the actual weighing operation, sets each dial on the control panel to correspond with the amounts of each ingredient in his formula. Sequence of adding materials and their timing are selectively controllable.

After setting up the control panel, the "START" button is pressed. This actuates the screw feeder mechanism, delivering to the Richardson Automatic Scale the amount of material set on the first control dial and then stopping. This action is visible on the scale dial. Then, depending upon the settings of the various selections and controls, the scale either discharges to a mixer or goes on to the next ingredient, repeating the cycle and adding this ingredient to the weigh hopper in the amount indicated by setting on the second control dial. Again, the pointer on the dial moves to its new position, as the material is added, and

"If the humidity bothers us, we start up the Lectrodryer and, in 15 minutes, our worries are over"

This Type CHK Lectrodryer (left) holds tableting rooms at American Ferment Company, Trenton, New Jersey, at about 30% relative humidity.

# No summertime slumps here

Hygroscopic materials handled here, unprotected, would pick up moisture from the air, causing production to slow to a standstill. But a Lectrodryer* guards against that hazard. It feeds DRY air to the department, making it independent of the outside weather.

Standing by on dry days, this Lectrodryer is ready to go to work on a moment's notice.

Are you troubled with moisture in the air surrounding or entering into your processes, in gases or organic liquids? There's a Lectrodryer to remove every trace of that moisture—efficient, dependable and costing little to operate. Our engineers will help incorporate it into your processes.

For this DRYing help, write us, outlining your problem. Pittsburgh Lectrodryer Corporation, 309 32nd Street, Pittsburgh 30, Penna.

In England: Birlec, Limited, Tyburn Road, Erdington, Birmingham.
In Australia: Birlec, Limited, 51 Parramatta Road, Glebe, Sydney.
In France: Stein et Roubaix, 24 Rue Erlanger, Paris XVI.
In Belgium: S. A. Belge Stein et Roubaix, 320 Rue du Moulin, Bressoux-Liege.

LECTRODRYERS DRY WITH ACTIVATED ALUMINAS

**LECTRODRYER**

*REGISTERED TRADEMARK U.S. PAT. OFF.

stops the action. Control circuits may be so arranged as to provide either (1) delivery of consecutive weights of varying amounts according to a predetermined schedule, or (2) accumulation of a total batch of a preselected formula and its discharge to a surge hopper or mixer as a whole.

Following discharge of the automatic scale, a tare check circuit is brought into operation to prevent the scale from initiating the next weighing unless all material is cleared from the weigh hopper and the unit is in perfect empty balance. This is accomplished by electrically verifying the repositioning of the dial scale pointer at exact zero or empty balance position.

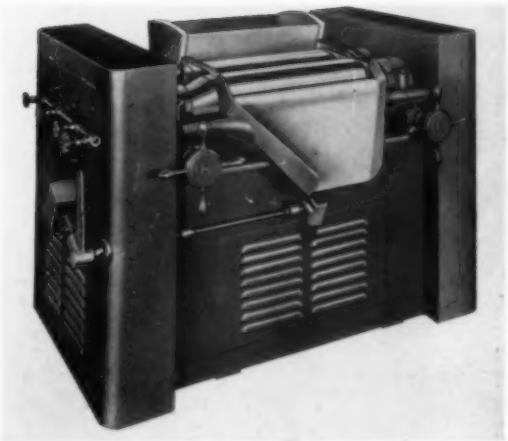
A further elaboration of the system is the operation of repeater dials to indicate remotely the position of each scale pointer.

### Small Filler

Perl Machine Manufacturing Company, 68 Jay Street, Brooklyn, N. Y., makers of bottle filling and other packaging machinery, announces a new filling machine designed especially for the smaller bottling and packaging plant. Although the Twin Filler is only a fraction of the cost of the larger machines, Perl has maintained all the advantages usually found only in the more expensive machines. Twin Filler occupies a minimum of floor space, and offers quick change-overs and high speed operation with minimum set-up time for short runs. It is equipped with the exclusive Perl Automatic valves, developed and improved over the years by Perl engineers. These valves permit filling by either vacuum or pressure. In contrast to ordinary thumb screw adjustments, the Twin Filler valves are adjusted by micrometer screw to assure filling levels with maximum precision. Automatic bottom shut-off and special packing screw that prevents air from penetrating between the two sliding tubings of the valves, make the filling completely dripless. Complete specifications of the Twin Filler on request. Write for circular F-6. Perl Machine Mfg. Co., 68 Jay St., Bklyn 1, N. Y.

### Clayton Steam Generator Booklet

Just released by the Clayton Manufacturing Company, El Monte, California, is a new, fully-illustrated booklet on the automatic, self-contained Clayton Steam Generator. Details are given on specific industrial applications of the equipment in reducing costs while automatically supplying a dependable volume of steam at constant levels of temperature and pressure. The use of single and multiple installations is described. The new efficiency in steam generation made possible by the application of the forced recirculation principle is demonstrated graphically by means of charts and cutaway drawings. Operational data, showing the application of the Clayton Steam Generator to many industrial processes, is given. Data is supplied on the models and sizes of the Clayton Steam Generator now available.



### Three Roller Mills

Charles Ross & Son Co. of 148-156 Classon Ave., Brooklyn, N. Y., announce their new No. 52T 14″ x 32″ and 9″ x 24″ Mills which are the development in their line of Three Roller Mills and incorporate many improvements.

Dispersion or particle size reduction is accomplished along the full production face of the rolls as new type easily removed hoppers ride off the outside taper of the rolls. Latest type of thin wall roll construction and full length water cooling assure uniform grinding and temperature control. The three rolls revolve at specially determined differential speeds and front roll speeds of 350 RPM are used without excessive heating due to the specially bored cooling chambers in the roll construction.

The Mills are said to be extremely quiet in operation using heavy self aligning roller bearings throughout and helical gears which operate in continuous oil bath lubrication.

The new No. 52T Mills feature a specially designed balanced apron which assures uniform pressure of the thin take-off knife along the full face of the roll and eliminates scoring of roll ends. The apron is quickly detached from the front roll for cleaning. "Down time" in cleaning is also minimized by utilizing special bearings in the adjusting handwheels through which the rolls can be quickly disengaged. Parallel roll settings to any desired pressure are obtained with calibrated indicating dials which assure sensitive and accurate adjustment of the rolls. The setting is direct and, with no intermediate wearable parts, will not lose its effectiveness or accuracy.

The frame of each No. 52T Mill is of solid one piece cast construction for maximum rigidity to eliminate vibration and to assure perfect roll alignment under the most severe working conditions. The motor is mounted inside the frame of the Mill, and, while single speed is standard, two speed motors are furnished in many cases according to processing requirements.

Highest quality grinding or dispersion results are reported, and, with the increased production features, maximum output is delivered.

### Paperwork Conveyors

Smith, Kline & French Inc. uses belt conveyors to handle paperwork at its new Philadelphia distribution center. From the time an order is phoned in, until shipment is made, papers travel from station to station by belt conveyor. The company stocks and distributes some 30,000 drug-store items.

The paper flow begins in the order-receiving room. Here, 16 girls handle hundreds of telephone orders per

day. As orders come in, they are immediately typed on forms. Each form comprises an original plus one carbon. After a girl types an order, she places the form on the conveyor which passes in front of her. The conveyor is approximately 5 feet high, a convenient reaching height which also allows desk space under the belt. This conveyor discharges to a second conveyor at right angles to it.

The second belt takes the orders to the "order control" station. Here, credit is checked and orders are segregated as to whether large or small. When small orders are received, forms are held until additional orders from the same firm aggregate a sizable shipment. Bills of lading are made here when required and the customers' addressograph plate is procured. At this station items are coded as to their location in the warehouse.

Next, the order is dispatched through a vertical chute to the warehouse floor below where the order is filled. A vertical conveyor brings the papers upstairs again. This vertical conveyor comprises two facing and touching belts which carry papers upward by sandwiching them between the belts.

The vertical conveyor discharges to a third horizontal conveyor which carries the papers to the head pricer who distributes them among twelve assistants. The carbon copy invoice is sent to the shipping desk to be inserted with the outgoing goods. The original goes to "accounts receivable" for entry.

By conveying this large volume of work from station to station, the belt system, designed and installed by the Lamson Corporation, Syracuse, N. Y., saves countless steps in carrying papers back and forth. Only 40 people are needed to process the tremendous traffic of hundreds of orders each day. The system also eliminates confusion; prevents papers from being lost; and speeds paper processing, order filling, and shipping.

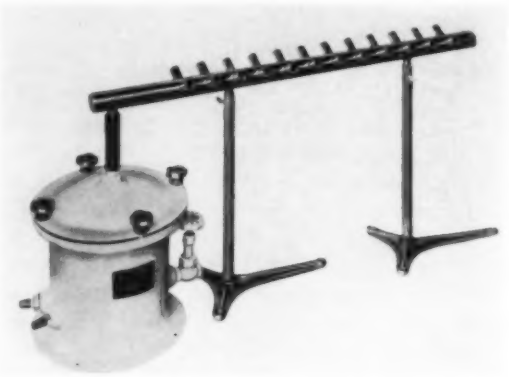
### Whirlpool Mixer

A low-cost mixer offered by Standard Electric features a ⅓ hp. G.E. motor, 110V, single phase 60 cycle and other improvements including 36″ Stainless steel shaft and two balanced polished stainless 4-inch propellors (push-pull) that are adjustable to any position on the shaft. Heavy base combines a clamp that locks at many different positions. This mixer, No. MX13, is a stock item, available immediately, at $37.50 FOB factory. Also Slo-speed, explosion proof and heavy duty models. Catalog available. Standard Electric Mfg. Co., Inc., West Berlin, N. J.

### Freeze-Drying Unit

The Stokes Model 101 freeze-drying unit, designed primarily for the preservation of bacteriological cultures and similar materials in very small quantities, will dry up to 35 milliliters of material per run. This unit uses Cryochem desiccant and silica gel, and will dry 140 milliliters of material before regeneration of desiccant is necessary.

The manifold has 24 ports which will handle up to 72 containers at once. Double or triple exhaust tubes can be attached to any port to service two or three containers each; containers may range in size from .05 to 25 milliliters capacity. This equipment is supplied with or without vacuum pump and McLeod Gage.



For further information write or phone: Miss Lilyon E. Louden, Publicity Manager, John Mather Lupton Co., Inc., 420 Lexington Ave., New York 17, N. Y., MU 9-0950; or Mr. David E. Stokes, Advertising Manager, F. J. Stokes Machine Company, 5500 Tabor Road, Philadelphia 20, Pa., DElaware 6-5700.

### New Laboratory Filter

The Ertel Engineering Corporation, Kingston 11, New York, announces the development of a new laboratory filter. It is the first time that such a small multiple-disk unit has been available.

The Lucite model lends itself to visual study of the filtration cycle and should open new avenues to research. Double filtration can be achieved with a dividing head if desired.

The filter can be had in two sizes: 4″ square with approximate filtration area of 11 square inches per

# PERFECT BALANCE

STATIC DYNAMIC

Typical inside view of a MIKRO PULVERIZER

## What PERFECT BALANCE Does:

- Eliminates vibration.
- Lengthens life of machine.
- Permits ceiling suspension (when necessary).

## What PERFECT BALANCE Gives:

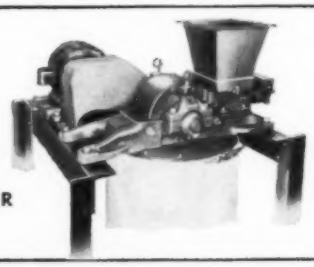
- Flexibility in installation
- Smoother machine operation
- High constant rate of production

### Long Life Span

Many of our first MIKRO-PULVERIZERS, built more than a quarter century ago, are still in active service. Perfect balancing of all moving parts has had much to do with this longevity.

### Catalog Tells All

If you are presently confronted with a problem concerned with pulverizing or granulation of materials, write today for a copy of the MIKRO illustrated catalog.



No. 2DH MIKRO PULVERIZER

### The MIKRO PLAN for Processing Efficiency

This plan has enabled both large and small manufacturers of diverse products to improve quality of product, increase volume and cut both maintenance and production costs. It can also be helpful to you if you have a problem in pulverizing or granulating materials. Just let us know what your problem is and the three-way MIKRO-PLAN will start to work for you. Our engineers will advise the best method and equipment to solve your problem.

1082

**PULVERIZING MACHINERY COMPANY**
**22 Chatham Road** **Summit, N. J.**

PRESERVE OUR HERITAGE: FAITH, FREEDOM AND INCENTIVE

MIKRO-PULVERIZER (FINE) -ATOMIZER (ULTRA FINE)
Reg. U. S. Pat. Off.
Also Makers of the MIKRO-COLLECTOR

# Color catches the eye, captures the sale

## Increase your sales with closures of *Colorful* Plaskon

Plaskon colors command attention! Closures molded of this beautiful plastic material will give your package the extra touch of quality that wins it preferred position on the shelf, *and gets sales.*

Plaskon molding compounds are available in a full range of hues, from startling solid colors to subtle pastels. *All* the colors are permanent, chip-proof, won't fade, check or mar.

Caps of Plaskon hold their shape. They resist solvents, greases, oils, dilute acids and alkalies.

These are the reasons why *the most famous names* in cosmetics, drugs and pharmaceuticals are on packages topped with Plaskon caps. Whether you're a manufacturer, wholesaler, or retailer, insist on closures of beautiful Plaskon Urea when you order from your supplier.

***Add selling punch to your packages with Colorful Plaskon caps***

**PLASKON DIVISION**
Libbey • Owens • Ford Glass Company
Toledo 6, Ohio
*Branch Offices:*
Boston • Chicago • Los Angeles • New York
Manufacturers of Molding Compounds, Resin Glues, Coating Resins
*In Canada:*
Canadian Industries, Ltd. • Montreal, P.Q.

INSIST ON
**PLASKON**
MOLDING COMPOUNDS
FOR QUALITY AND COLOR IN PLASTICS

sheet and 8″ square with approximate filtration area 52 square inches per sheet.

The filters are available with choice of circulatory systems: 1. All parts coming in contact with liquid can be all Lucite.

2. All parts in contact with liquid Lucite with stainless steel screens.

3. Circulatory passages all stainless steel.

Complete closure is affected by a single handle.

The stainless steel model is recommended for handling liquids where liquid temperatures are above 120°F. and where sterilization is required. The new filter is exceptionally easy to clean. The screens are simple to remove. The units are light in weight. The 4″ model requires approximately one square foot of space.

Ertel Asbestos Filter sheets in grades No. 1 to No. 9, plus grade E-O pyrogen and bacterial retentive sheets are available for both size filters.

Suggested uses include filtration of pharmaceuticals, drugs, cosmetics, perfumes, chemicals, and for bacterial and pyrogen retention work using the stainless steel unit.

All the engineering skill and manufacturing perfection long associated with all Ertel Liquid Handling Equipment has gone into these laboratory filters to insure the finest piece of equipment available from any source.

### Superhomo Homogenizer

Cherry-Burrell Corporation, 427 W. Randolph St., Chicago 6, Ill., announced an addition to their line of Model A Superhomo Homogenizers. The new machine has a capacity of 800 G.P.H. It can be used for milk, ice cream mix, tomato juice, ketchup, textile sizing, cosmetic, oil additives, pharmaceuticals, pigments, mineral oils, soft drinks, etc.

This Model A-800-C Superhomo has been thoroughly tested at the factory. It is available with a single or two-stage valve, and all product surfaces are of stainless steel. Increased capacity has been obtained by using a larger diameter plunger rather than increasing the speed at the drive end. Slow speed at the drive end extra large helical gears help assure long life and low maintenance costs. Maximum operating pressure is 2500 psi.

### "Beaker Bouncer"

Breakage of laboratory and pharmacy glassware is an important item in hospital and laboratory budgets. To reduce breakage to a minimum, Meinecke (225 Varick St., N. Y. 14) developed the "Beaker Bouncer" which is now used by leading hospitals, research, industrial and university laboratories, blood banks, etc. Users report substantial savings are achieved.

The "Beaker Bouncer" is a resilient mat for use in the bottom of sinks. It is made of Akrolite, a chemically resistant material on a firm steel mesh base. These mats are guaranteed not to crack or harden even with constant use. Many sizes available.

### New Labeler

Able Engineering, Inc., Minneapolis, Minnesota, has developed a combination unit called the "Label Master", which will attach un-gummed or pre-gummed labels to various types of containers, similar to their "Label Chief" labeling machine. With simple changeover, the new machine (The Label Master) will also handle heat-activated labels. According to Mr. Toles, president of Able Engineering, Inc., this versatile machine is a variation of the "Label Chief" model for un-gummed and pre-gummed labels, which has had long acceptance of packagers with the problem of a variety of label and container sizes. Incidentally, the Label Chief was recently completely redesigned.

A more economically priced adaptation called the "Label Champ" is designed for heat-activated labels only.

"Functional improvements of all three models consist of extremely simple adjusting mechanisms for various sizes of labels and containers. These adjustments are accurate and non-fluctuating so that labels are affixed precisely and identically on each container," reported Jay J. Golfus, Sales Manager.

"Other improvements include a completely new idea for the Label Table and a re-designed Auto-Feed unit, all precision-built to make the labelers economical and versatile. They can be operated on a straight line or at almost any angle to the capping line."

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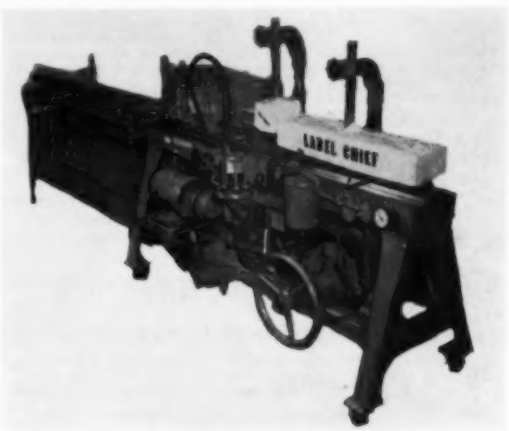
Able Engineering, Inc., located at 607 22nd Avenue N.E., Minneapolis 18, Minnesota, also specializes in bottle un-scramblers, bottle washers, powered conveyors, and in design of custom-built machines to fit the particular problems of its customers.



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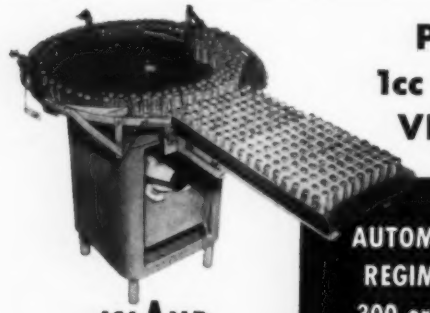

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BY.....

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CITY.....ZONE.....STATE.....


## Factors Governing Todays Life Span

*(Continued from page 471)*

average city butcher whose trade is mostly white, sells but 2 per cent of the 21 per cent offal meats available which consist of liver, heart, tongue, sweet-bread and brain. Farm areas show a higher consumption of these latter meats. Table 6 brings to light preferentials of different races for carnivorous foods and its relationship to cancer rate.

**TABLE 6**
VISCERA-MUSCLE MEAT RATIO AND CANCER RATE

| *Group* | *Viscera* | *Muscle* | *Cancer per 100M* |
|---|---|---|---|
| Eskimo | 1 | 3 | 1* |
| American Indian, prereservation | 1 | 3 | 1* |
| African Negro, primitive | 1 | 3 | 1* |
| African Negro, Johannesburg | 1 | 5 | 15 |
| U.S. Negro | 1 | 4-49 | 60 |
| U.S. Cities, mostly white† | 1 | 49 | 157 |

†New York, Chicago, Philadelphia, Los Angeles, New Orleans, St. Louis (1930).
*Estimated.

It is widely known that the visceral organs are appreciably richer in vitamins and minerals than is muscle tissue. Such fact might very well be accountable in some degree for the radically contrasting mortality rates in Table 6, 5, and 4. There is weighty evidence indicating that Man is a carnivorous animal. He has by necessity become omnivorous for the very simple reason there are not enough animal foods to go around and because foods gotten directly from the earth are usually more plentiful and easily obtained. Man has not bettered himself physiologically by this versatility the proof of which is beyond the scope of this discussion. However the work of Maisin and Pourbaix[15] concerning the correlation of various types of meats and neoplastic disease is worthy of attention. These investigators demonstrated that within various animal organs exist cancer growth-promoting and cancer growth-inhibiting factors. The concerted balancing effect of these two forces might constitute a growth regulatory system. The imbalance of the two might also be the trigger mechanism which sets off a cellular explosion. The study in question consisted of a technique as follows: mice were painted with a carcinogenic substance, tar, three times weekly for four months. The basal diet was composed of a small roll made of whole wheat, water and vitamins. The mice were divided into groups for observation. Cancer of the skin appeared in some animals about the 90th day—in others not until later. The dietary of the divided groups was supplemented with various types of animal tissue as shown in Table 7. At the end of 210 days, the frequency of neoplastic disease was noted and recorded in percentage. From this data it is readily apparent that some substances possessed a very high inhibitory rate and others highly stimulatory. The addition of liver, muscle, pancreas, and duodenal mucosa increased the frequency of cancer, as compared with whole wheat rolls and vitamins; the addition of thymus, red-bone marrow, lymph nodes, brain and gastric mucosa lowered the incidence of wild cell growth. It must be again repeated while this data

is provocative, it is not conclusive and should serve only as a stimulant for the pursuit of further facts along these lines.

TABLE 7
CANCER RATE ON THE 210TH DAY IN TARRED MICE[16]

| *Diet* | *Cancer per cent* |
|---|---|
| Liver, dried | 92.5 |
| Liver, fat free | 83.2 |
| Brain, aq. ext. ph. 7.0 | 79.9 |
| Liver, ether extract | 76.0 |
| Brain, aq. ext. ph. 8.4 | 75.9 |
| Duodenal Mucosa | 73.5 |
| Liver, aq. ext. | 73.5 |
| Pancreas, raw | 73.3 |
| Muscle | 62.0 |
| Liver, raw | 59.5 |
| Whole wheat, vitamins | 56.0 |
| Spleen, aq. ext. | 55.4 |
| Brain, acetone ext. | 51.3 |
| Red Bone Marrow, ether ext. | 47.2 |
| Thymus, raw | 46.1 |
| Liver ext., Lilly | 43.7 |
| Brain, fat-free | 42.0 |
| Brain, ether ext. | 35.0 |
| Red Bone Marrow | 34.3 |
| Lymph Nodes, dried | 34.1 |
| Brain, acetone-ether ext. | 25.0 |
| Brain, raw | 22.4 |
| Brain, ether-acetone, Cal. precip. | 22.2 |
| Gastric mucosa, dried | 20.0 |
| Brain, ether-acetone, precip. | 11.5 |

We should like to bring out several more facets of neoplastic disease which should force a serious scrutiny into the connection between cancer and diet. Eskimos are not a long lived race. Life is hard, food is scarce and difficult to store. The climate is brutal. All the forces of nature in the frigid zones are hostile, yet neoplastic disease is extremely rare or completely nonexistent among these people. Greist[17] who for 16 years was director of Point Barrow, Alaska, Hospital and in contact with the Eskimo along a thousand miles of Alaska coast, states that he failed to observe a single case of malignancy among them. Stefansson[18] reports he did not encounter even one case of cancer among those Eskimos living under primitive conditions. Garber[19] claims that cancer and many other pathologies common to the white man are unknown to the Eskimo who lives in strict conformation to their ancient customs. Bulkley[20] relates that after living among Eskimos for over 12 years in Alaska, he was unable to detect a true case of carcinoma among the full-bloods and very few among those of mixed-blood. Collectively, these observations and many others of a similar nature must be treated with respect. Again we are returned to that focal point of so many radii—nutrition. The Eskimos are subject to two radical influences not common to inhabitants of the temperate and torrid zones. The climate is of course well known but could hardly in itself be called carcinogenic. His diet is equally far-removed, consisting as it does mainly of fish, seal, walrus and possibly a few other animals. They eat, cooked or raw, the carcass, viscera and blubber. It is doubtful if anything digestible is over-looked. Such a dietary would more certainly supply all nutritional components than would muscle tissue itself, which is the major constituent of America's meat intake.

(*Continued on page 562*)

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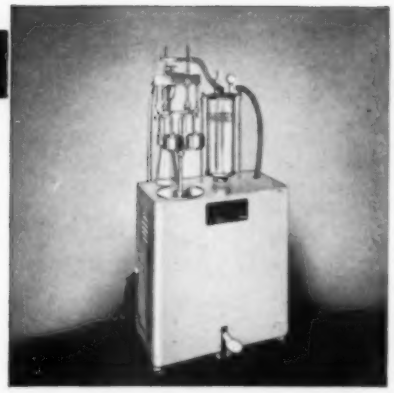

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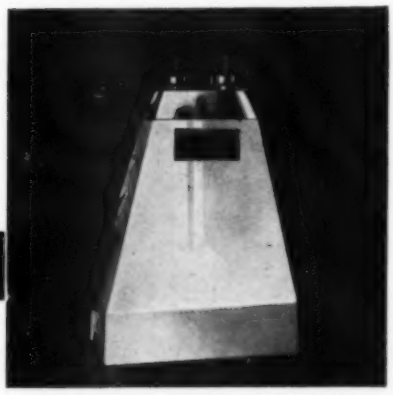

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# Industry's Books

*Antibiotic Therapy*, by Henry Welch, Ph.D., Director, Division of Antibiotics, Food and Drug Administration, Federal Security Agency of the United States Government, and Charles N. Lewis, M.D., Medical Officer, Division of Antibiotics, Food and Drug Administration, 562 pp., The Arundel Press, Inc., Washington, D. C., $10.

This work explains all of the antibiotics in complete and practical detail. Against a background of the experimental development, today's battery of the antibiotics is analyzed and evaluated. From tyrothricin to viomycin—from the oldest to the newest—the antimicrobial activity, the pharmacology, the dosage, and clinical use of all available forms of the antibiotiyc are presented in precise and orderly detail. This book presents a concise. systematic, and clinically oriented guide to the whole field of antibiotic therapy. The available preparations and the susceptible diseases are brought together in specific and concrete detail. Dosage and vehicle of administration are given specific attention. Contraindications, complications, and side reactions are discussed. Alternative forms of therapy are shown but the rationale for each alternative is demonstrated. At each step the procedure of choice is made clear and logical and includes quick reference sections devoted to: Infections—pneumococcal and streptococcal, staphylococcal, meningococcal, and gonococcal, Syphilis and other spirochetal diseases. Surgical infections. Urinary and Intestinal tract infections. Infectious diarrhea of the newborn. Brucellosis, plague and tularemia. Tuberculosis. Viral and rickettsial diseases etc.

*The British Pharmaceutical Codex 1949*, (*Supplement 1952*), Published by Direction of the Council of the Pharmaceutical Society of Great Britain, 148 pp., Cloth, The Pharmaceutical Press, London, 25s.

This supplement includes monographs on drugs recently introduced into medicine for which clinical evidence of efficacy was considered adequate but which were not included in the British Pharmacopoeia, the British Pharmaceutical Codex or in the Addendum to the British Pharmacopoeia. The Supplement also contains information on the action and uses of drugs added to the British Pharmacopoeia by the Addendum and not previously described in the British Pharmaceutical Codex. Existing monographs have been amended where experience of the tests and assays specified in the British Pharmaceutical Codex has indicated such amendments were desirable.

*Ultraviolet Spectra of Aromatic Compounds*, by Robert A. Friedel, D.Sc., Physical Chemist, and Milton Orchin, Ph.D., Organic Chemist, Bureau of Mines, Bruceton, Penna., John Wiley & Sons, Inc., New York, $10.

The ultraviolet absorption spectra of organic compounds are of considerable importance in qualitative and quantitative organic chemistry and are increasingly valuable in the determination of the geometry of molecular structure. Although their utility is universally recognized, few collections of spectra have appeared. It is frequently difficult to locate desired spectra or even to ascertain whether these spectra have been published. An added difficulty is that literature spectra are plotted on different scales with various kinds of coordinates, and comparison is thereby rendered tedious. The collection, systematization, and reproduction of all the ultraviolet spectra that have appeared in the literatue are clearly out of the question. This work is mainly with polynuclear aromatic compounds. The present catalogue of about 600 spectra is a modest start in the systematic collection of the ultraviolet spectra of this class of compounds. About half of these spectra have been taken from the literature and have been transformed, where necessary, into a consistent method of plotting. The choice of literature spectra was rather arbitrary. The work of certain chemists active in the field here and abroad was consulted, and the spectra of compounds deemed of general or specific interest were selected. Many of the compounds that are known to occur in coal tar and shale oil are included, and the spectra of numerous cancer-producing compounds are also given.

*The Merck Index of Chemicals and Drugs, Sixth Edition (1952), 1167 pp.*, Published by Merck & Co., Inc., Rahway, N. J., Regular edition $7.50, thumb-index edition, $8.00.

The completely new Sixth Edition of the Index covers more than 8,000 descriptions of individual substances, more than 2,000 structural formulas, and about 20,000 names of chemicals and drugs alphabetically arranged and cross-indexed. New features include a table of standard buffers for calibrating pH measurements; a table of radioactive isotopes giving their half lives and type of radiation and a table of current medical uses for radioactive elements and compounds. A new section lists more than 300 organic "Name" reactions with original and review references, together with a description and structural representation of each reaction. There is an up-to-date periodic table, a table of international atomic weights, and close to 150 pages of appendices on such subjects as coal-tar colors, thermometric equivalents, anti-freeze mixtures, refractive index of liquids, saturated solutions, percentage solution tables for apothecaries, and atomic weights and their multiples and logs. Other outstanding features are as follows: Each main entry indicates the preferred chemical name or other chemical names, common or popular names, generic and trade names. Trade-mark listing is as complete as possible and thoroughly crossindexed. Properties and sources of substances, preceded by methods of preparation, with literature references, are given, followed by an indication of uses, whether industrial, medical, or veterinary. Hazards, toxicities, and other safety factors are mentioned. Indication is given of commercial availability and grades, such as U.S.P., N.F., and reagent. Empirical formulas, molecular weights, and percentage composition are given for all chemicals having a definite structure. This work is an invaluable encyclopedia for the chemist, pharmacist, physician, and allied professions.

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# Readers' Questions

*HAIR COLOR RINSE: Will you please furnish us with formulas for making hair color rinses? We would like preparations that are harmless and retain their shade. Toronto.*

Products of this sort generally consist of suitable mixtures (according to the color desired) of F.D.&C. acid dyes in an organic acid like citric, tartaric, or succinic acid. As a rule, up to about 20 per cent of dye is mixed in the dry organic acid carrier. The dry mixture is packed in glassine or similar water-resistant envelopes at the rate of 30 grains of mixture per envelope, with instructions to add the contents to a gallon of water for use as a rinse. A typical preparation of this sort for a jet black hair rinse consists of:

| | |
|---|---|
| **D.&C. Black No. 1** | **80 ounces** |
| **D.&C. Red No. 13** | **12 "** |
| **D.&C. Brown No. 1** | **8 "** |
| **Tartaric acid USP** | **400 "** |

*HAND LOTION: We would appreciate it if you could give us a formula for a hand lotion similar to BLANK. New York City.*

I regret that I do not know the composition of BLANK hand lotion and, moreover, it is contrary to our policy to cite formulas of products, even when known. However, I think the following product will provide you with a suitable preparation.

| | | |
|---|---|---|
| **A.** | **Stearic acid (triple pressed)** | **7.0 per cent** |
| | **Lanolin (anhyd.)** | **0.5 " "** |
| | **Sorbitan mono-oleate** | **0.5 " "** |
| | **Polyoxyethylene sorbitan monostearate** | **2.5 " "** |
| **B.** | **Water** | **89.5 " "** |
| | **Preservative** | **sufficient** |
| **C.** | **Perfume** | **sufficient** |

Add (A) at 90° C. to (B) at 95° C. Stir rapidly to 30° C. Perfume at 50° C.

*ANTI-PRURITIC OINTMENT: Will you kindly furnish me with a good formula for the treatment of itchy conditions? I am interested in a preparation that will stop the itch and at the same time, heal the weeping condition of the affected parts. Cambridge.*

There are a number of anti-pruritic ointments which will stop itching. As to their effectiveness in relieving weeping of infected parts, that is something else again. In many cases relief of the itching and scratching will avoid specific secondary infection. A simple formula for an anti-pruritic ointment consists of:

| | |
|---|---|
| **Menthol** | **0.5 Gm.** |
| **Camphor** | **1.0 Gm.** |
| **Cold cream, to make** | **100.0 Gm.** |

Another somewhat more elaborate preparation, known as Schiller's ointment or camphor-menthol ointment, consists of:

| | |
|---|---|
| **Camphor** | **3.0 Gm.** |
| **Menthol** | **0.5 Gm.** |
| **Wool fat** | **40.0 Gm.** |
| **Cold cream** | **40.0 Gm.** |
| **White petrolatum, to make** | **100.0 Gm.** |

*LIQUID STOCKINGS: We are looking for a tip-top formula for "Liquid Stockings". Can you help please, and can your reply take note of the fact that we shall be compelled to make do without imported materials? London.*

The following is a good working formula from which I hope you will be able to develop a "tip-top" cosmetic stocking:

| | |
|---|---|
| **Precipitated chalk** | **10.0 per cent** |
| **Talc** | **5.0 " "** |
| **Titanium dioxide** | **3.0 " "** |
| **Bentonite** | **2.0 " "** |
| **Alcohol** | **8.0 " "** |
| **Glycerine** | **3.0 " "** |
| **Wetting agent** | **0.5 " "** |
| **Methyl cellulose** | **0.5 " "** |
| **Water** | **68.0 " "** |
| **Dye and pigment** | **sufficient** |

The question of color is an important one. Color is given by insoluble pigments of the harmless earth color group and lakes made from certified dyes. These must be extended by the addition of white materials with a certain amount of covering power. This covering power is necessary to hide minor blemishes and irregularities in skin texture, yet a heavily powdered appearance, from too much covering power, must not result. Zinc oxide and titanium dioxide, used sparingly will give desired opacity. Precipitated chalk, because of its smaller covering power, may be used in relatively larger proportions.

In addition to the insoluble pigments, it seems a good idea to add a very small amount of dye of the same shade, soluble in the medium used. This will not only tint the liquid, but will also very slightly stain the skin. In this way, an effect similar to that in lipsticks will result, where top color from the pigments may eventually be rubbed off, with the undertone of dye still imparting color.

# Compounder's Corner

## Value of Isopropyl Alcohol

In response to an inquiry concerning the usefulness of isopropyl alcohol, it is pointed out in the *Journal of the American Medical Association* (147:1308, 1951) that isopropylalcohol (isopropanol) may be substituted for ethyl alcohol in many instances. In physical properties it closely resembles ethyl alcohol. It is readily miscible with water in all proportions and possesses fat solvent properties somewhat greater than ethyl alcohol. Isopropyl alcohol rubbing compound N.F. contains 68 to 72 per cent of isopropyl alcohol, by volume, in water, with or without certified coal tar colors and perfume oils. As a disinfectant, isopropyl alcohol possesses antibacterial properties and limitations similar to those of ethyl alcohol. Neither is sporicidal and should not be relied on for sterilization. Many vegetative forms of bacteria are destroyed by both alcohols, and isopropyl alcohol is frequently utilized for the disinfection of oral thermometers Isopropyl alcohol is available commercially as 91 to 99 per cent by volume; most authorities recommend the concentrated solutions for use as a disinfectant, although others recommend 50 to 80 per cent solutions. Isopropanol combines readily with proteins and should not be used for primary cleansing of syringes and needles. The commercial preparation may contain spore-forming micro-organisms, which can be removed by bacterial filters; after filtration, the solution may be used for storage of sterile instruments, needles, and syringes. An antioxidant (rust preventer, e. g., sodium nitrite, sodium borate) may be incorporated in solutions used for storage of instruments. For skin disinfection, alcohol and other chemical agents should not be substituted for thorough mechanical cleansing.

The irritant properties of isopropyl alcohol are similar to those of ethyl alcohol. All syringes and needles should be free from residual amounts of these compounds prior to hypodermic injections. Studies with undiluted and 50 per cent isopropyl alcohol applications, twice daily for 25 days, to areas of about 300 sq. cm. on the arms of three persons failed to produce skin irritation or absorption. Local effects, similar to those produced by ethyl alcohol, result from wearing bandages saturated with isopropyl alcohol.

It is also noted that isopropyl alcohol requires no government permit or record of its disposition, is not subject to the taxation requirements exercised by the federal government on ethyl alcohol, and therefore has "price appeal" as a disinfectant and solvent.

## Improved Ointments

Several of the reports presented at the Australian and New Zealand Association for the Advancement of Science, and subsequently published in the August 15, 1951 issue of the *Australasian Journal of Pharmacy present* improved methods for making several well known ointments. For example, N. C. Manning and J. C. Manning made a study of 8-hydroxyquinoline in various ointment bases. They concluded that the following formula was a suitable ointment for dispensing this increasingly popular compound:

| | |
|---|---|
| **8-Hydroxyquinoline** | **1 grain** |
| **Tragacanth** | **40 grains** |
| **Glycerine** | **480 minims** |
| **Distilled water, to make** | **4 fl. oz.** |

Dissolve the hydroxyquinoline in the glycerine with the aid of gentle heat, add the tragacanth, mix well, add the distilled water. Boil for one minute, cool and adjust the volume with distilled water.

R. A. Anderson suggested a number of modifications of formulas in the Australian Pharmaceutical Formulary (A.P.F.). Thus, the following formula for cream of zinc oxide and ichthammol was proposed as an improvement over the previous preparations:

| | |
|---|---|
| **Zinc Oxide, finely sifted** | **18.75 per cent** |
| **Ichthammol** | **5.18 " "** |
| **Wood Fat** | **27.50 " "** |
| **Oleic Acid** | **1.07 " "** |
| **Arachis Oil** | **10.00 " "** |
| **Solution of Calcium Hydroxide** | **18.75 per cent** |
| **Yellow Soft Paraffin** | **10.00 " "** |
| **Liquid Paraffin** | **8.75 " "** |

During the winter months it may be desirable to replace the soft paraffin, or some part of it, by liquid paraffin.

Anderson found that greater stability and less separation occurred when the following formula was used to prepare cream of zinc oxide:

| | |
|---|---|
| **Zinc Oxide, finely sifted** | **20.0 per cent** |
| **Wool Fat** | **10.0 " "** |
| **Oleic Acid** | **0.5 " "** |
| **Solution of Calcium Hydroxide** | **25.0 " "** |
| **White Soft Paraffin** | **20.0 " "** |
| **Liquid Paraffin, to make** | **100.0 " "** |

If a lotion containing a higher percentage of powder is desired, he suggests the following lotion of calamine and zinc oxide:

| | |
|---|---|
| **Calamine** | **10.0 per cent** |
| **Zinc oxide** | **4.5 " "** |
| **Saccharated solution of calcium hydroxide, B.P.C.** | **3.0 " "** |
| **Solution of calcium hydroxide** | **50.0 " "** |
| **Oleic acid** | **0.6 " "** |
| **Arachis oil, to make** | **100.0 " "** |

Liquefied phenol may be prescribed in this lotion. One per cent. V/V is suitable.

Anderson suggests that a slightly modified stainless iodized ointment can be made along the following:

| | |
|---|---|
| **Iodine, finely powdered** | **5.0 per cent** |
| **Peanut oil** | **15.0 " "** |
| **Yellow soft paraffin, to make** | **100.0 " "** |

Completely dissolve the iodine in the peanut oil in a wide-mouthed, glass-stoppered bottle, and set aside until the brown color had disappeared (8 to 12 weeks). Add the solution to the soft paraffin and triturate.

Finally, Anderson proposes the following modification of compound oint-

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# U.S.I. CHEMICAL NEWS

April ★ A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1952

## Chemical Combination Found to Influence Radioactive Decay Rates

Recent research has apparently disproved the once universally accepted axiom that chemical states have no effect on nuclear properties. Observations of spontaneously radioactive technetium and beryllium, and compounds of these metals, are reported to have shown that the rates of decay of the metals vary according to the way in which they are combined chemically. For example, technetium in potassium pertechnate ($KTcO_4$) decays 0.3 per cent faster than the reduced metal, and in its sulfide ($Tc_2S_7$) it decays 0.03 per cent faster. Beryllium showed a decrease in decay rate in its compounds relative to the metal, according to the report.

A theory advanced to account for these results suggests that the change in decay rate is caused by variations in electron density in the atom close to its nucleus. Change in decay rate at high pressures, also predicted by the theory, was confirmed in the laboratory when technetium metal under 100,000 atmospheres was found to decay 0.025 per cent faster than the metal at normal pressure.

## *Dehydrogenated Polymers Retain Carbon Structure*

It was recently reported that if certain highly cross-linked hydrocarbon polymers, such as polyvinylbenzene or polyvinyl acetylene, are carefully dehydrogenated in an inert atmosphere, most of the carbon-to-carbon bonds survive the process. The result is a polymeric form of carbon which has the same crystalline form as the original hydrocarbon polymer. Providing no carbon is lost, there is no shrinkage in gross size, it is said, but the material gains a porosity which gives it a surface of about ⅛ acre per gram. In spite of its porosity, the carbon polymer is hard, smooth, and extremely refractory. The removal of hydrogen from the polymer is dependent on temperature, and if part of the hydrogen is left in the structure, the material assumes a variety of properties as an organic semiconductor, according to the report. For example, between the temperatures of 700° and 1000° C., removal of hydrogen is such that the specific resistivity of the material changes over a range of 10,000 megohms.

## Paint Testing Devices Listed in New Booklet

A new booklet on testing instruments for the paint, plastic, paper, and related industries is now available to the public. Arranged for quick reference, the booklet contains descriptions and illustrations of 80 different testing devices designed for measuring such properties as viscosity, film thickness, drying time, abrasion, hardness, gloss, and reflection.

# U.S.I.'s New Allethrin Plant Scheduled for Summer Completion

### First Large-Scale Commercial Plant to Begin Insecticide Manufacture in July; Plans Announced For New Pyrethrum Flower Production in Ecuador

U.S.I. has announced that its new Allethrin plant in Baltimore will be completed and in operation by July of this year. Representing the first large-scale commercial production of this chemical in the United States, the new plant will offer additional supplies to help insecticide manufacturers fill the almost limitless demand that exists for safe, effective products. Used as a supplement to pyrethrum, Allethrin will help materially to extend present limited supplies of the natural product and

**A view of part of the new plant U.S.I. is building in Baltimore where Allethrin will be manufactured on a large-scale commercial basis.**

will facilitate the current rapid expansion in the use of pyrethrum-type insecticides.

A synthetic chemical closely related to natural pyrethrum, Allethrin is the compound that excited the interest of the insecticide world three years ago when its synthesis was first announced by the U. S. Department of Agriculture. Careful evaluation of the chemical by U.S.I. entomologists has shown that while it is not a "synthetic pyrethrum" and some of the early illusions were unfounded, it is a valuable and important chemical in its own right and will be immensely

MORE

## *Methionine Improves Poultry Feathering*

Frequent field observations by poultry growers and feed industry researchers have indicated that methionine supplementation in rations, particularly in summer months, improves feathering. Now experimental data resulting from specific tests under practical field conditions in Texas substantiate this fact.

"Methionine has been found to increase growth, feed efficiency, and definitely improve feathering, particularly during summer months," say the researchers.*

A marked improvement in feathering in the summer months can be achieved by supplementing poultry rations with .05 per cent methionine. The resulting improved dressing quality means more attractive birds for the consumer and greater profits to the grower.

**J. R. Reed, Jr., and J. R. Couch, Texas Agricultural Experiment Station, unpublished data.*

## Paper from Glass Fibers Duplicates Natural Quartz

Development of a new, highly specialized glass fiber of sub-micron diameter which chemically duplicates natural quartz was recently announced. The fibers have successfully been made into a quartz paper, the initial use for which will be as high-temperature, non-deteriorating electrical insulation. The paper is reported to have resistance to temperatures up to 3000° F. and to provide minimum electrical losses at high frequencies. Extensive tests are said to have shown it to be relatively unaffected by radiation. The paper is also claimed to surpass the working limit for asbestos and to be capable of replacing it in some applications.

## *Booklet on Paint Driers*

A 31-page booklet recently offered to the public contains complete information on the physical and chemical properties of all types of driers. The data were compiled with the idea of giving the technical man working with drying oils and resins practical information on the selection and use of these materials, the company states.

## New Runways for Jets

A new plasticized blend of synthetic rubber and tar, designed for use on airport runways, is expected to be the answer to several problems brought about by the increasing use of jet aircraft. According to the manufacturer, the new material is unaffected by hot jet blasts, and it resists the dissolving effects of spilled fuel. Conventional runways, it is said, slowly disintegrate and become rutted as a result of frequent spillages of the kerosene-type fuel. When this happens, loose fragments of the pavement are kicked up by the jets in taking off, creating a hazard for any planes following in formation. Applied over asphaltic pavement in layers approximately an inch thick, the blend is claimed to be stable to high wheel loads and to provide a relatively non-skid surface.

CONTINUED

## *Allethrin Plant*

useful in insecticide formulations. The final step in its development was U.S.I.'s successful translation of the complex Allethrin synthesis into a full-scale tonnage process. Allethrin will join U.S.I.'s well known and growing family of insecticides which includes the famous Pyrenone*.

### Western Hemisphere Pyrethrum

Another milestone in U.S.I.'s progressive insecticide program has been reached by the completion of plans for growing pyrethrum flowers in Ecuador. The project includes the formation of a company to underwrite large-scale plantings of the flowers in a region of the country which up to now has been unproductive. The flowers grown there are the first high-grade ones to be produced commercially in the western hemisphere, and they are described as comparable to the African product in pyrethrum content. Special drying and packing plants are being built near the production areas.

*Reg. U.S. Pat. Off.

## New Process Makes Superior Sheet Mica From Domestic Supplies

A process has been developed for treating mica flakes of domestic origin in such a way that a force is generated which holds the particles together, according to a recent announcement. The new production method is said to overcome the inferior quality of American supplies and may necessitate the reactivation of mica mines in this country. The material is produced in the form of a continuous sheet in thicknesses ranging from 0.002 to 0.006 inch. Claimed to have better dielectric strength than present machine- and hand-laid mica products, the mica material can be impregnated with resins and bonded to paper, glass, and cloth. Laminates and tubing are among the applications foreseen for the product.

## Temperatures Recorded With Paper Thermometers

Disposable paper thermometers that instantly determine and record temperatures from 115° to 500° F. were described in a recent announcement. Designed originally to be used in studying thermal radiations of atomic blasts, the new instruments are also expected to be useful for testing the performance of engines, motors, heaters, and the like. The thermometers consist of black paper coated with white pigments. Each coating is designed to melt at a designated temperature, at which point it disappears into the black porous paper. Since the change from white to black is not reversible, it constitutes a permanent record of the indicated temperature. The new units are reported to react to temperatures much faster than other indicators based on color changes, and they can be produced inexpensively, it is said.

## *New Turpentine Chemicals*

The development of a new series of chemicals was reported recently which is expected to open up a new market for the naval stores industry. Called terpene hydroperoxides, the new chemicals are derived from gum turpentine and are said to have shown excellent promise in the production of plastics and synthetic rubber. They are described as particularly good catalysts for the "cold rubber" process. Manufacture of the chemicals involves hydrogenation of unsaturated pinenes in turpentine, followed by oxidation with air. Process is said to be simple and to require no special equipment.

## X-ray, Infrared Reports Listed in New Book

More than 1300 published reports on x-ray and infrared are listed and indexed in a recent book compiled for the use of chemists, chemical engineers, physicists, and others interested in these fields. The original reports total approximately 50,000 pages and have been selected from prewar and postwar reports of government, industrial, and university laboratories both here and abroad.

## TECHNICAL DEVELOPMENTS

*Information about manufacturers of these items may be obtained by writing U. S. I.*

**To make plaster casts harder and stronger,** a thin, liquid plastic dip is available which reportedly penetrates the hardened plaster and resinifies it upon curing. **(No. 789)**

**A new safety valve for 50-gallon drums** fits the bung opening, allows air to enter or vapors to escape with changing pressures, and automatically seals itself if the drum turns over, according to the manufacturer. **(No. 790)**

**Shredded polyethylene** in new filter elements for furnaces and airconditioners is said to become electrostatically charged on exposure to air currents, to retain the finest dust particles, and to be easy to clean. **(No. 791)**

**Handling objects as hot as 1200° F.** is reported possible with a new heat repelling glove made of aluminum-coated fabric and asbestos. The glove is claimed to reflect up to 90 per cent of radiated heat. **(No. 792)**

**A new tallate-type lead drier** with improved cold stability, for use in paints and related compositions, flows at temperatures as low as —30° and is readily soluble in oils and vehicles, the manufacturer states. **(No. 793)**

**Wearing surface of stainless steel** at a cost many times less than that of the solid metal is reportedly obtained with a new plastic coating which contains finely flaked stainless steel particles. **(No. 794)**

**An adjustable drum storage rack,** designed to eliminate need for shifting stacked drums in order to reach the one desired, handles heavy loads and can be knock-down and rearranged to fit various storage facilities. **(No. 795)**

**A putty-like vinyl paste** for coating outside surfaces of plating tanks is claimed to be easy to apply and to offer excellent protection from spills of acids and other corrosive chemicals. **(No. 796)**

**A new urea resin adhesive,** available as a powder, reportedly can be varied to meet many different gluing specifications and is suitable both for assembly joining and as a binder for granulated wood products. **(No. 797)**

**Daylight intensity is continuously recorded** directly in foot candles by a new automatic device expected to be valuable in exposure testing of paints. **(No. 798)**

**PRODUCTS OF U.S.I.**

**ALCOHOLS**
Amyl Alcohol (Isoamyl Alcohol)
Butanol (Normal-Butyl Alcohol)
Fusel Oil—Refined
Propanol (Normal-Propyl Alcohol)
**Ethanol (Ethyl Alcohol)**
Specially Denatured—all regular and anhydrous formulas
Completely Denatured—all regular and anhydrous formulas
Pure—190 proof U.S.P., Absolute—200 Proof
Solox*—proprietary solvent—regular and anhydrous
**ANTI-FREEZE**
Super Pyro* Anti-Freeze
U.S.I. Permanent Anti-Freeze
**ETHERS**
Ethyl Ether, U.S.P.
Ethyl Ether, Absolute—A.C.S.
**ACETONE — A.C.S.**

**ANSOLS**
Ansol* M
Ansol* PR
**ACETIC ESTERS**
Amyl Acetate—Commercial and High Test
Butyl Acetate
Ethyl Acetate—all grades
Normal-Propyl Acetate
**OXALIC ESTERS**
Dibutyl Oxalate
Diethyl Oxalate
**PHTHALIC ESTERS**
Diamyl Phthalate
Dibutyl Phthalate
Diethyl Phthalate
**OTHER ESTERS**
Diatol*
Diethyl Carbonate
Ethyl Chloroformate

**RESINS (Synthetic and Natural)**
Arochem*—modified types
Arodure*—urea-formaldehyde resins
Arofene*—pure phenolics
Aroflat*—for special flat finishes
Aroflint†—room temperature curing phenolic
Areplax*—alkyds and allied materials
Aropol†—copolymer modified alkyds
Ester Gums—all types
Natural Resins—all standard grades
**INSECTICIDE MATERIALS**
CPR Concentrates: Liquid & Dust
Piperanyl Butoxide
Piperanyl Cyclonene
Pyrenone* Concentrates: Liquid & Dust
Pyrethrum Products: Liquid & Dust
Retenone Products: Liquid & Dust
**INSECTIFUGE MATERIALS**
Indalone*
Triple-Mix Repellents

**INTERMEDIATES**
Acetoacetanilide
Acetoacet-ortho-chloroanilide
Acetoacet-ortho-toluidide
Acetoacet-para-chloroanilide
Ethyl Acetoacetate
Ethyl Benzoylacetate
Ethyl Sodium Oxalacetate
**FEED PRODUCTS**
Curbay B-G*
DL-Methionine
Riboflavin Concentrates
Special Liquid Curbay*
U.S.I. Vitamin $B_{12}$ and Antibiotic Feed Supplements
Vacatone* 40
**OTHER PRODUCTS**
Collodions
Ethylene
Nitrocellulose Solutions
PiB*—Liquid Insulation
Special Chemicals and Solvents
Urethan, U.S.P.

*Reg. U.S. Pat. Off.
†Trademark Pending

**U.S.I INDUSTRIAL CHEMICALS CO.**
*Division of National Distillers Products Corporation*

60 EAST 42nd ST., NEW YORK 17, N. Y. BRANCHES IN ALL PRINCIPAL CITIES

ment of benzoic acid or Whitefield's ointment as yielding a product that is more stable at higher temperatures (e. g. over 75°F.):

| | |
|---|---|
| **Benzoic acid, finely sifted** | **5.0 per cent** |
| **Salicylic acid, finely sifted** | **3.0 " "** |
| **White beeswax** | **8.0 " "** |
| **White soft paraffin** | **27.6 " "** |
| **Coconut oil** | **56.4 " "** |

During the winter months it may be desirable to replace the white beeswax by coconut oil.

Another modification of Whitefield's ointment was offered by P. D. Belcher who suggested the following formula as one which will overcome the disadvantages of the B.P.C. formula; and at the same time has the advantage of presenting the acids in a state of solution, thereby preventing the risk of irritation being produced by fine crystals of the acids:

| | |
|---|---|
| **Benzoic acid** | **25 parts** |
| **Salicylic acid** | **15 "** |
| **Castor oil** | **250 "** |
| **White wax** | **25 "** |
| **Wool fat** | **60 "** |
| **White petroleum jelly** | **125 "** |

The castor oil and wax should be heated together in a porcelain vessel over a water-bath. Add the acids and stir with a glass stirring rod until dissolved. Add the petroleum jelly and wool fat and stir until cold. The quantities of petroleum jelly and white wax may be varied slightly to suit atmospheric conditions in order that an ointment of satisfactory consistency may be produced. The ointment must be stirred until cold because castor oil and paraffin do not mix. If they are melted together and poured into a container to cool, they separate into two layers; but if they are stirred during the process of cooling, they will form a satisfactory ointment.

## New "Esters" Booklet

A new booklet on "Esters" has just been published by Carbide and Carbon Chemicals Company, a Division of Union Carbide and Carbon Corporation. This booklet describes the more than 30 esters that are sold by the Company; their uses, physical properties, and shipping data. The booklet describes the solubility of various resins in some of the esters as well as their performance in nitrocellulose lacquers. Also included is a bibliography that lists the important references to esters in chemical literature. An important feature of this new booklet is a section covering the specifications of the esters as they are shipped. This section is complemented by a complete description of the control tests that are recommended by the Company for determining these specifications. Copies of "Esters" (F-4766), are available from Carbide and Carbon Chemicals Company, 30 East 42nd Street, New York 17, N. Y.

## Preparations for Eczema

According to D. S. Anderson and J. W. Hadgraft (*Trans. St. John's Hosp. Derm. Soc.*, Oct. 1951, through *Pharm. J.* 167:454, 1951) creams and lotions for the treatment of eczema should be of low pH, isotonic, contain absorptive powders or hygroscopic substances, and should have an antipruritic action. The following formulas are given of the preparations which have proved most useful:

**I**

| | |
|---|---|
| **Titanium dioxide** | **5.0 Gm.** |
| **Bentonite** | **3.5 Gm.** |
| **Solution of Bordeaux B.** | **0.5 cc.** |
| **Buffer solution, to make** | **100.0 cc.** |

The buffer solution contains sodium phosphate 31 Gm., citric acid 9 Gm. and distilled water 830 cc.

**II**

| | |
|---|---|
| **Liquid petrolatum** | **10.0 Gm.** |
| **Methyl cellulose** | **4.0 Gm.** |
| **Glycerine** | **2.0 Gm.** |
| **Titanium dioxide** | **5.0 Gm.** |
| **Buffer solution, to make** | **100.0 Gm.** |

The buffer solution contains sodium phosphate 30 Gm., citric acid 10 Gm., and distilled water 830 cc.

**III**

| | |
|---|---|
| **Ointment of wool alcohols** | **47.5 Gm.** |
| **Titanium dioxide** | **5.0 Gm.** |
| **Buffer solution** | **47.5 Gm.** |

The buffer solution is the same as that used for the preceding formula.

The first is recommended for the acute, the second for the subacute, and the third for the chronic phases of eczema. The best results were obtained in seborrheic eczema, but good results were also obtained in nummular eczema, contact dermatitis and infective eczema. In atopic infantile eczema the results were not so satisfactory, but the lotion made according to the first formula eased the pruritus and dried up the acute lesions.

## Nasal Sprays

In discussing the treatment of chronic nasal catarrh, W. A. Mill (*Practitioner* 167:577, 1951) advises that, if there is much mucoid discharge, a spray solution may be useful. Suitable sprays include 0.5 per cent ephedrine in normal saline or 5 per cent silver proteinate. He suggests the following as a good, bland, nonirritating spray:

| | |
|---|---|
| **Sodium bicarbonate** | **0.32 Gm.** |
| **Sodium biborate** | **0.32 Gm.** |
| **Sodium chloride** | **0.32 Gm.** |
| **Sucrose** | **0.32 Gm.** |
| **Distilled water, to make** | **85.50 cc.** |

If desired, 0.5 per cent of ephedrine may be added to this solution.

In the case of nasopharyngeal catarrh, Mill suggests that some relief may be obtained by the use of the following spray:

| | |
|---|---|
| **Chloretone (Chlorobutol)** | **0.13 Gm.** |
| **Sodium bicarbonate** | **0.13 Gm.** |
| **Glycerine** | **3.00 cc.** |
| **Normal saline, to make** | **28.50 cc.** |

## Tioglycollic Acid Esters

Useful information on the characteristics of various thioglycollic acid esters is provided in the table given below. These tabulated data, as given in *Soap, Perfumery and Cosmetics* (24:1245, 1951), appeared originally in a booklet issued by Robinson Bros., Ltd., an English chemical firm.

*Thioglycollic Acid Esters*

| | B.P. °C. | mm. | Sp. Gr. | n 20° D | Odor |
|---|---|---|---|---|---|
| Methyl | 34—36 | 1 | 1.165 | 1.4665 | Unpleasant—persistent |
| Ethyl | 53—55 | 12 | 1.108 | 1.4596 | Alliacious |
| Isopropyl | 55 | 12 | 1.042 | 1.4508 | Pungent not unpleasant |
| n-Butyl | 50—52 | 0.5 | 1.038 | 1.4575 | Suggesting amyl acetate |
| Amyl | 55—60 | 0.5 | 1.006 | 1.4555 | Similar to amyl acetate |
| n-Hexyl | 60—70 | 0.5 | 0.988 | 1.4570 | Unpleasant—suggestive of black-currants |
| n-Octyl | 80 | 0.5 | 0.963 | 1.4581 | Similar to the alcohol |
| Sec—Octyl | 75—85 | 0.5 | 0.953 | 1.4529 | Slight—similar to the alcohol |
| Decyl | 108—112 | 0.5 | 0.945 | | Slight—sweet similar to the alcohol |
| Cyclohexyl | 75—80 | 1.0 | 1.087 | 1.4877 | Gentle—pleasant |
| Benzyl | 90—100 | 0.5 | 1.165 | | Very slight |
| Phenylethyl | 108—9 | 1.0 | 1.139 | | Suggesting clover—similar to the alcohol |
| Phenyl Propyl | 115—120 | 0.1 | 1.113 | | Slight—pleasant |
| Glycol Mono | 100 | 2.0 | 1.268 | | $H_2S$ |
| Glycol Di | 150 | 2.0 | 1.312 | | $H_2S$ |

* Specific rotation.

# Animal Health

## Sulfaquinoxaline in Avian Coccidiosis

In his report in the *American Journal of Veterinary Research* (12:349, 1951), R. A. Bankowski states that sulfaquinoxaline administered to chickens in a mash as a prophylactic agent against an impending infection with coccidiosis indicated that the drug was effective in alleviating clinical manifestations in chickens infected with mild cecal, and some forms of intestinal, coccidiosis. The effective dosage for alleviating symptoms of cecal coccidiosis by the continuous method of treatment appeared to be greater than the amount which has been reported as effective in decreasing the mortality from more severe forms of the disease. The disease in the trials was not sufficiently serious to warrant treatment by preventative methods which are widely recommended at the present time.

## Chloramphenicol in Veterinary Medicine

Clinical trials by J. W. Eastman, A. S. Schlingman, M. C. Manning and F. E. Eads (*J. Am. Vet. Med. Assoc.* 120:28, 1952) with chloramphenicol (Chloromycetin) against several animal diseases have demonstrated the effectiveness of this antibiotic in a wide variety of infections. Their paper cites results obtained in both large and small domestic animals with such disease conditions as hemorrhagic septicemia conjunctivitis and keratitis, retained placental membranes, metritis, infectious diarrheas, otitis externa, acrobystitis, and the secondary invaders of canine distemper.

Thus, cattle affected with hemorrhagic septicemia (shipping fever) required one to four daily doses of chloramphenicol to bring about recovery. The majority of infectious diarrheas in calves responded to oral chloramphenicol therapy within twenty-four hours following two or three doses. A colt and lambs suffering from the same condition were apparently normal after two to four days of treatment.

All the dogs suffering from infectious gastroenteritis recovered completely following one or two days oral treatment with chloramphenicol. Results following oral administration of chloramphenicol to dogs showing evidence of infections secondary to distemper were variable. The majority of the animals recovered after four to twenty-one days therapy. Five and 10 per cent chloramphenicol ointment was effective in the treatment of conjunctivitis, keratitis, and acrobystitis, recovery occurring following a week to ten days of treatment. A case of metritis in the dog was treated successfully by oral administration of chloramphenicol for one day, but instillation of 1 Gm. into the uterus of a cow suffering frm the same condition apparently had no beneficial effect. Another cow improved after two uterine injections of 2 Gm. each at four-day intervals.

## Aspirin Potentiates Sulfas

Writing in the *North American Veterinarian* (33:101, 1952), A. K. Miller and W. F. Verwey point out that sulfonamides are used in the treatment of a variety of infections, and their efficacy as chemotherapeutic agents is well established. Recently they have been used in combinations with other drugs, particularly antibiotic agents, in an effort to increase the spectrum of organisms that may be inhibited and to prevent therapeutic failure due to the development of drug and antibiotic fastness. Combinations of the sulfonamides have been used in order to lessen toxic responses to the individual drugs used in the combination.

In a new approach, these workers investigated the use of acetylsalicylic acid (aspirin) to potentiate sulfonamide therapy. Their experiments have shown that the combined use of acetylsalicylic acid and a sulfonamide was more effective in the treatment of experimental pneumococcic infections in mice than was the sulfonamide alone. This effect was demonstrated both when the sulfonamide dosage was held constant and the acetylsalicylic acid dose was varied, and also when the reverse experimental design was used. Because the salicylate itself was not able to protect the animals from the infection, this enhanced therapeutic effect is considered to be potentiation rather than synergy. These experimental results suggest that acetylsalicylic acid, in addition to its clinical use for the symptomatic relief of pain and malaise, might also be useful as an adjunct in the therapy of infectious conditions. This type of therapy already has been tried in a limited way in small-animal practice with apparently favorable results, but the extent to which such combined therapy will be found to be useful remains to be determined by more extensive clinical investigation.

## Antivitamin D Factor in Green Feed

The presence of an antivitamin D factor in green feed grazing is reported by A. B. Grant (*Nature*, 168:789, 1951). The development of rickets, attended by a reduction in gain of weight, in weaned lambs grazing on green oat plants and other green feeds was noted more than 15 years ago. Since such plants contain adequate quantities of calcium and phosphorus and since the disease could be prevented by a single massive dose of calciferol, but not by normally adequate weekly doses of cod-liver oil, the presence of a rachitogenic factor was postulated. Tests, in which a chloroform extract, in dilute solution in olive oil, of dried, young green oats was given to rats, indicate that the extract exerts a pronounced depressant effect on the bone ash response to vitamin D. By administering the vitamin subcutaneously and the extract orally, it was proved that the results were not due to any factor associated with the oat extract which might reduce the amount of vitamin D absorbed from the gut. Similar results have been obtained with extracts of young Italian ryegrass. Preliminary work on permanent pasture, on which feed the development of bovine rickets has not so far been reported, has demonstrated that it contains both vitamin D and the antivitamin D factor. Rats on the standard rachitogenic ration developed more severe rickets when dosed with an extract of the young green leaves, but the opposite effect resulted from dosing with an extract of the brown dead leaves. The net result when an extract of the whole pasture sample was given was an increase in bone

calcification. Whether both vitamin D and the antivitamin D factor exist together in varying proportions in both the green and dead material has yet to be determined. Because of these findings Grant advises that for many materials of plant origin the biologically determined assay figures for vitamin D should be accepted with some reserve.

## Diethylstilbestrol and Thiouracil for Turkeys

The use of diethylstilbestrol and thiouracil for improving the finish of turkey was discussed by W. J. Stadelman at the 40th annual meeting of the Poultry Science Association (through *Poultry Sci.* 30:931, 1951). A series of six experiments was conducted, using thiouracil and diethylstilbestrol alone and in combination for a four week finishing period with turkeys. Broad Breasted Bronze turkeys were marketed at 11-, 17- and 21-weeks of age.

Thiouracil, included in a pelleted mash ration at a 0.2 per cent level, resulted in a significant reduction in weight gain of turkeys at all ages used. The use of diethylstilbestrol implants partially overcame the growth inhibition of thiouracil. The use of a combination of thiouracil and diethylstilbestrol gave greatest improvement in dressed appearance. The levels used on the 11-week old turkeys were too high for best results. With 17- and 21-week old turkeys a combination of 0.2 per cent thiouracil in the feed and 24 mg. of diethylstilbestrol implanted under the skin at the base of the skull resulted in greatest improvement.

## Nitrofurazone vs Avian Coccidiosis

A report on the efficacy of nitrofurazone fed continuously for control of avian coccidiosis under conditions of natural infection was presented at the recent meeting of the American Society of Parasitologists by P. D. Harwood. In the experiments reported, nitrofurazone was fed at the low level of 0.0055 per cent. In earlier work a level of 0.0067 per cent demonstrated that the drug effectively reduced losses in naturally occurring outbreaks of avian coccidiosis.

The reduced level of nitrofurazone (0.0055 per cent) was employed in 5 experiments involving 5,000 chickens. In each case, the birds receiving the reduced level of the drug suffered fewer deaths from coccidiosis and made superior weight gains. In a typical test, 200 birds were placed in each of three similar pens of 150 square feet. In this test, control birds averaged 116.7 Gm. at 3 weeks of age, 330.7 at 6 weeks, 713.9 at 9 weeks and 1160.4 at 12 weeks. Similar mean weights for birds receiving the reduced level of nitrofurazone continuously in the mash were (for the same ages) 122.5, 352.1, 732.8 and 1248.1 Gm. For a reference control pen receiving 0.0125 per cent sulfaquinoxaline, the weights were 141.7, 370.3, 723.0 and 1220.9 Gm. Deaths from coccidiosis totalled 10, 3 and 6 in the three pens respectively.

In these tests, said Harwood, each bird was handled every three weeks. Evidence of natural infection with coccidiosis was first noted about three weeks of age. Usually the first deaths occurred during the 5th week, reached a peak during the 6th or 7th week; the latest deaths occurring during the 8th or 9th week. Therefore, treatment limited to one or even two weeks of the epizootic merely reduces the losses at the peak, but does nothing to combat such losses during the greater portion of the epizootic. Consequently, continuous medication until resistance to coccidiosis is acquired seems desirable.

## Antibiotics in Swine Nutrition

According to a note in the *North American Veterinarian* (33:95, 1952) the question of baby pig losses has been receiving the attention of veterinary nutritionists and others for a number of years; but obviously the recent gains that have been made in saving a higher percentage of the young pig crop are due largely to the introduction of antibiotics in the feed. In this connection attention is directed to a recent report by F. Dobbins (*Feedstuffs*, Dec. 15, 1951, p. 28) in which he states that antibiotics do the most good when fed to young swine during the nursing period and immediately after weaning. However, for maximum growth response, antibiotics should be fed from the time the pigs start eating until they reach market weight. In general, less scours occur in pigs fed rations containing adequate levels of antibiotics. Experimental work conducted with swine thus far indicates the following advantages for antibiotics:

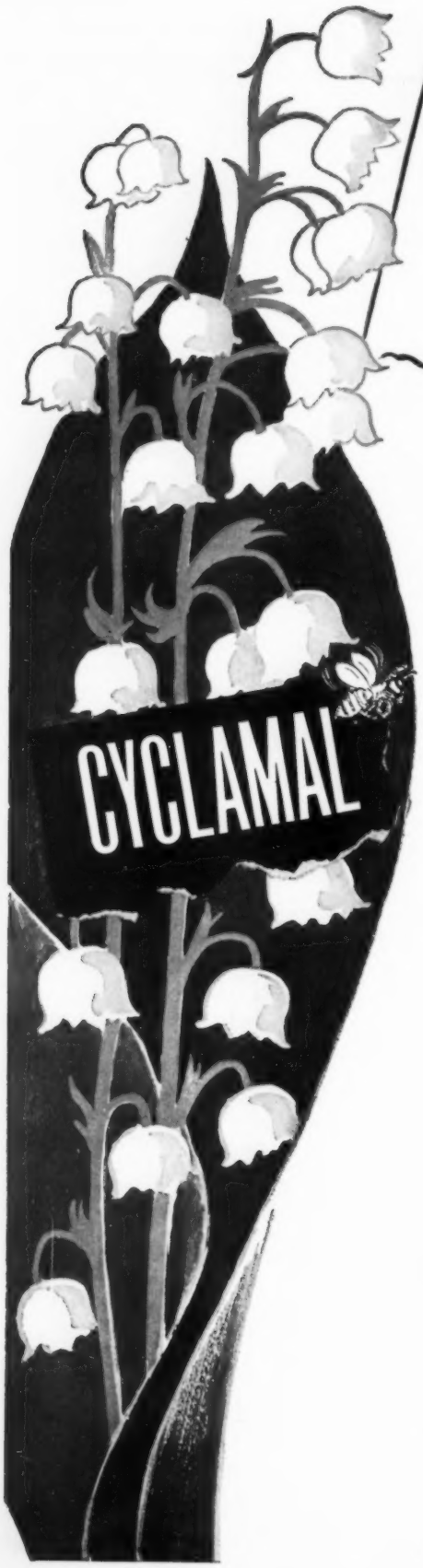
(1) Ten to 20 per cent faster growth, (2) Five to 10 per cent less feed required per unit of gain, (3) Fewer runts and more uniform growth of pigs, (4) Favorable growth response either in dry lot or on pasture, (5) Heavier weaning weights when included in creep rations, (6) Maximum results when fed from time pigs start eating to market weight.

## Effects of Vitamin A Deficiency

It is pointed out in the *Journal of the American Veterinary Medical Association* (120:151, 1952) that vitamin A deficiency may cause incoordination, staggering gait, and spasms in cattle, sheep, and swine. The eye lesions vary in animals which may be manifested in the cow by lacrimation, in the chicken by closed eyelids and a thick creamy exudate. It is also noted reproductive disturbances are often encountered in both males and females. In many cases, the young are born prematurely, dead, or weak. The vitamin A requirements for reproduction are greater than for maintenance. Growth is impaired in vitamin A deficiency. As a rule, milk supplies lambs and calves with sufficient vitamin A if their mothers have been fed an adequate amount. Bright green, leafy, legume hay will supply cattle and sheep with adequate amounts. Five to 10 per cent of green alfalfa hay will provide pigs with sufficient vitamin A. The fish oils are the richest sources of vitamin A. By including 1 to 2 per cent of fish oils in rations of calves, pigs, and chickens, the vitamin A requirements are met and also supply an adequate amount of vitamin D.

Of related interest is the finding by D. F. Eveleth, F. M. Bolin and D. W. Bolin (North Dakota Agri. Exper. Station Bull. 371, Jan. 1952) that vitamin A—deficient sheep are susceptible to parasitism. In their study, ewes were fed a carotene-low ration in order to decrease their vitamin A reserves. Lambs born to these ewes were very susceptible to intercurrent infections and in many cases the ewes either died or failed to produce milk. Later, when the lambs were exposed to the gastrointestinal parasites, they died from acute parasitism. The effect of parasites on the conversion of carotene to vitamin A could not be determined but the lack of resistance to parasitism of vitamin A-deficient lambs was well illustrated.

Also pertinent are the observations made by V. S. Asmundson and F. H. Kratzer (*Poultry Sci.* 31:71, 1952) on vitamin A deficiency in turkey breeding stock. They found that such a deficiency caused typical symptoms in the eyes, throat, and ureters of breeder turkeys with blindness and death of many of the hens and some of the males. Hatchability was greatly reduced and poult mortality increased. The breeding birds recovered, except for blindness, hatchability increased, and poult mortality decreased gradually after the breeding stock was dosed with high potency vitamin A oil.

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# Patent Thoughts and Trends

*by Thomas Cifelli, Jr.*†
PATENT ATTORNEY

## PATENT POINTERS—II

Last month we began a series of articles under this general heading, the thought being to give the reader some practical suggestions and observations to the end that the patent information thereby conferred might help the reader in better cooperating with his patent attorney. The underlying thought in this endeavor is to aid the drug and cosmetic workers, and through the worker, the industry of which he is a part.

The topics treated last month are outlined as follows:

- Introduction
- Things to do Before an Invention is Made
  - Records
  - Diligence
  - Reduction to Practice
- After an Invention is Made
  - What is Invention?
  - Practical Test of Invention
  - Trade Secret v. Patent
  - Selection of Patent Attorney

In this article we shall consider the selection of the patent attorney, the information which should be available for the attorney, the matter of searches, and general questions met in the preparation of patent applications: the time required to prepare the application, the general nature of the material to be disclosed in the application, who should be named as inventors, and the difference between an inventor and a patent owner.

### Selection of Patent Attorney

Let us now assume that the reader had made an invention and has not disqualified himself from obtaining a valid U.S. patent. He is now at the stage where he should consider the selection of a patent attorney to handle the patent details for him. If a patent attorney has already done satisfactory work for you or if your company provides this professional assistance, there is no problem. Also, it is not required that you must engage the services of a patent attorney. The inventor may prepare and prosecute his own patent application, and some inventors do. The U.S. Patent Office advises inventors to employ a competent registered attorney or registered agent, as the value of patents depends largely upon the skillful preparation of the specification and the claims. Therefore, selection of a suitable patent attorney or agent is highly important. The recommendations of friends and associates who have had experience with patent attorneys or agents are of great help. Another way of getting in touch with a competent attorney is by making an inquiry addressed to the nearest patent law association, which will upon request very probably furnish the names of three or more reputable patent attorneys located close by. An attorney located close enough to the inventor so that personal conferences can be had is believed to be preferable to one located at a distance, as the quality of the patent application may very well be better in the case of the former than in the case of the latter because of the opportunities for discussion, etc. If one resides in Chicago he does not ordinarily engage a physician in New York.

In case a selection had to be made, the inventor should satisfy himself that the particular patent attorney engaged by him has suitable qualifications to handle the invention. In this connection, a few remarks concerning patent attorneys and what they are appear to be in order.

A patent attorney is a person who has fulfilled the requirements of the Patent Office that he has the "necessary legal and scientific qualifications to enable him to render applicants for patents valuable service and is otherwise competent to advise and assist them in the presentation and prosecution of their applications before the Patent Office."

A patent attorney, however, is not necessarily a lawyer. Prior to November 15, 1938, all persons who were registered to practice before the Patent Office were permitted to call themselves patent attorneys, even though they might not have been lawyers. Since November 15, 1938, all persons who have been registered to practice before the U.S. Patent Office are registered as patent agents unless they happen to be lawyers, in which case they are registered as patent attorneys.

A patent attorney who is not a lawyer, or a patent agent, cannot appeal from the Patent Office tribunals to any of the federal courts such as the U.S. Court of Customs and Patent Appeals, nor can he prosecute or defend any infringement suits in the federal courts.

In any case, the inventor should not hesitate at all in asking the patent attorney or agent to summarize his educational and professional background befor engaging the attorney or agent. There is no valid reason why a reputable patent attorney or agent would object to giving such information.

### Information for Patent Attorney or Agent

Before a patent attorney or agent is consulted it is in the interests of the inventor to determine what the scope of his invention is. This will save him time and money and will contribute to the obtaining of maximum patent protection. This determination should preferably be based on experimental evidence but at the very least should be arrived at after serious theoretical considerations are taken into account. Questions to be considered will naturally depend on whether the invention involves a process or a composition of matter. Since in practice many patents are granted with both process and product claims it is desirable to consider all factors, leaving it to the attorney or agent to determine which information is required for the particular case. It is therefore recommended that a potential applicant have the following information in writing before he consults his patent adviser:

(1) The problem that has been solved. A process may have been made cheaper or better yields may have been obtained, etc., or the stability of a composition may have been improved.

(2) The known methods of accom-

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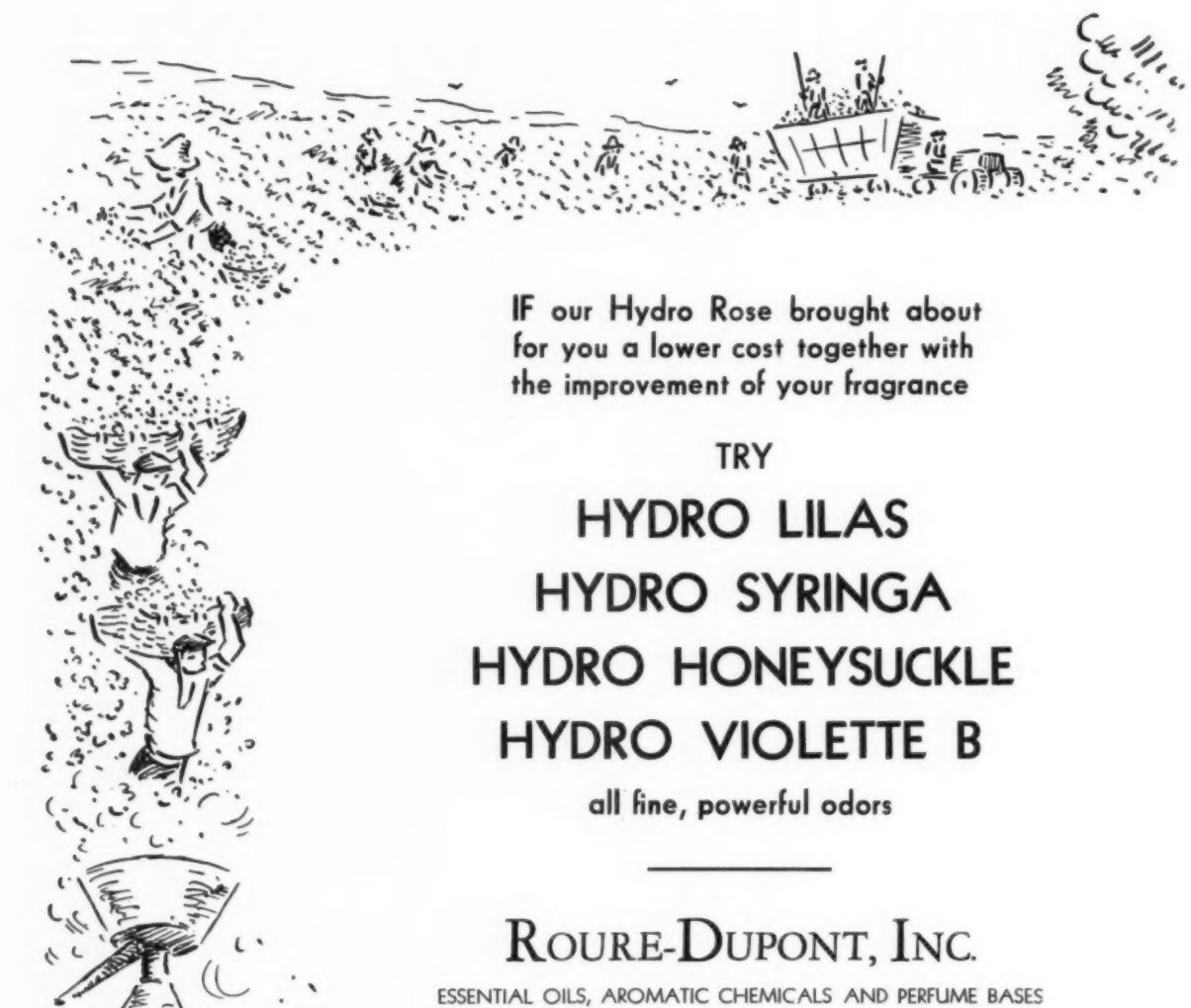

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plishing the same or related objectives. This is what is termed "prior art."

(3) Why does the potential applicant believe it was not obvious for one in possession of knowledge of the prior art to solve the problem in the manner which was actually effected? Here, even though the potential applicant may not in fact have been aware of the prior art at the time he solved the problem, nevertheless, for patent purposes he is chargeable with such knowledge and his solution to the problem must involve invention over the prior art, whether such knowledge was actually known or not to the inventor at the time the invention was made.

(4) Complete statement of the process, and, if a novel composition or product is also involved, the formula or recipe and physical and chemical properties of the composition or product should also be given.

(5) Substitute materials should be included. Thus, for example, if a process involves the use of methyl alcohol and other alcohols may also be used this should be stated.

### Searches

Perhaps the first task that the patent attorney or agent will perform is that of having a search made in order to determine whether the alleged invention has previously been disclosed. The main reason for a search is to make sure that the invention has not already been disclosed. If it has then obviously it is not new and there is no point in going to the time and expense of filing a patent application.

Another very important purpose which a patentability search often serves is to delineate the amount of patent protection available. If the prior art is very close, your patent attorney will have to restrict his claims so as not to overlap what already was known. On the other hand, if the prior art is far afield then you may be entitled to claims of broad scope.

Still another advantage often accrues from art searches. Reference is made to the fact that one often gets new ideas as a result of studying the prior art.

Whatever the reasons for and advantages from a search may be, the fact remains that searching is a highly specialized art in itself. The search has to be limited from a practical standpoint and prior to the filing of a patent application only a cursory or preliminary investigation is usually made. Such investigations are rather inexpensive and they ordinarily disclose the most pertinent patents.

While the Patent Office maintains a very elaborate and on-the-whole-excellent system of classification of patents it is not possible with 100 per cent certainty to say that a complete search has been made. There are about two and a half million U.S. patents and it would be out of the question to read all of them or even all of the ones that pertain generally to the subject. Furthermore, even if the alleged invention has not been disclosed in any U.S. patents it is conceivable that it has been disclosed in domestic publications or foreign patents or foreign publications, in which case no valid U.S. patent can be obtained if the date of the patent and publication is more than 1 year old. If less than a year has elapsed and if you completed your invention in the U.S.A. before the reference U.S. patent filing date or before the date of the foreign patent or before the date of the publication, and can prove it, you will not be barred from getting a U.S. patent.

After the search, which takes from one to three weeks, the patent attorney obtains copies of the most pertinent patents and attempts to evaluate them in the light of the invention. In this connection, the inventor can be of invaluable assistance to the patent attorney. Here an objective approach is absolutely necessary; give the patents their due, for if you don't the Patent Examiner undoubtedly will and you may be put to the unnecessary expense of filing and prosecuting a patent application which has no hope of being allowed.

### Preparation of Patent Application
### Time to Prepare

If we assume that the search does not disclose any anticipatory prior matter and it still appears that there is patentable subject matter present, the next step is the preparation of the patent application. Many inventors have wondered as to how long a time should elapse between the original concept and the time a patent is applied for. Unfortunately, no answer of general application can be given. The writer knows of a case when this period was only a few days and one where it was several months—each being justified under the facts of the particular cases. It is believed more helpful to suggest to the reader that he keep adequate records, be diligent in his working out of a problem, and consult his patent attorney or agent as soon as the desired solution to the problem has been obtained. Consultations with the patent adviser will bring out the answer to whether a patent application should be filed at all, and if so, whether it should be prepared on the basis of the information at hand or only after additional data are obtained.

### Application to Be Detailed, Accurate and Complete

It cannot be emphasized too strongly that great care and attention to detail and accuracy should go into the preparation of a patent application. Unfortunately, an attitude became widespread in the U.S. chemical and related industries following World War I that one should not disclose anything in a patent application but should claim just about everything. Unless the inventor is willing to disclose completely the invention he is wasting his money in applying for a patent as any patent obtained on an insufficient disclosure is invalid.

Some inventors have the idea that they can disclose a minimum amount of information in the patent application and file it in that form and then as the Examiner presents pertinent arguments information to overcome those arguments can later be inserted in the patent application. This is incorrect as the Patent Office rigidly enforces a rule against new matter. While clarifying or explanatory statements can be inserted in the patent application during the prosecution, no material which introduces new technical facts can be inserted once the application has been filed. In such a case all that can be done is to file a new application with the added matter and then abandon the first application.

### Persons To Be Named as Inventors

A question to consider seriously is just whose name or names should be placed on the patent application as the inventor or co-inventors. It is considered only proper by many people, especially those who work in groups, that when an application is filed all those who worked together in the group should have their names placed on the patent application. While this attitude is commendable it unfortunately is in conflict with the proper rule on the question. The patent rule is that only those who have contributed to the actual *claimed* invention may be considered as the inventors. The contribution to be of any help has to be a creative one. For example, if A sits at the desk and actually performs no work but instructs B as to just what has to be done and B performs all of the work without contributing any creative ideas to the

(*Continued on page 559*)

# Perfumer's Shelf

## Chromatographic Preparation of Terpeneless Oils

Essential oils, widely used in perfumes, pharmaceuticals, toilet preparations, and beverage flavors, contain terpenes and sesquiterpenes which usually develop unpleasant odors and flavors on exposure to air. However, terpeneless and sesquiterpeneless oils are available and a chromatographic process for their preparation has been devised by J. G. Kirchner and J. M. Miller (*Ind. & Eng. Chem.* 44:318, 1952). In the new process developed by these workers a column of adsorbent was prepared by packing the conventional Tswett chromatographic tube with silicic acid (100 mesh or finer). Best results were obtained by packing the column from a slurry of the solvent with the adsorbent. The oil from which the terpenes were to be removed was then placed on the top of the adsorbent and drawn into it by suction. The column was developed in the usual way with hexane (boiling point 65° to 95° C.) until all of the hydrocarbon fraction had been washed into the eluate. The non-hydrocarbon fractions were removed from the absorbent by replacing the hexane with ethyl acetate or other strong eluating agent. Low temperature distillation (at 0° C.) is used to remove the solvents.

Eight essential oils were treated by this method. By proper choice of the amount of adsorbent in relation to the amount of oil to be deterpened and the hydrocarbon content of the oil, an essentially complete separation of the two fractions was accomplished. The amounts of silicic acid needed to adsorb the nonterpenes from 100 grams of these oils, and the yield of terpene and nonterpene fractions is shown in the following table:

Summary of Essential Oils from Which Terpene Fractions Have Been Removed

| *Oil* | *Aa* | *Bb* | *Cc* | *Dd* |
|---|---|---|---|---|
| Orange, cold-pressed | 136 | 4.0 | 90.7 | 94.7 |
| Grapefruit, cold-pressed | 151 | 16.5 | 74.0 | 90.5 |
| Lemon, cold-pressed | 108 | 6.0 | 88.8 | 94.8 |
| Clove | 656 | 86.0 | 10.3 | 96.3 |
| Peppermint | 600 | 67.5 | 21.4 | 88.9 |
| Petitgrain, Paraguay | 800 | 83.5 | 8.1 | 91.6 |
| Bay | 700 | 74.0 | 20.0 | 94.0 |
| Cedarwood | 382 | 28.8 | 65.8 | 94.6 |

a *A*, grams of silicic acid to remove all nonterpenes from 100 grams of oil.
b *B*, yield of nonterpenes from 100 grams of oil.
c *C*, yield of terpenes from 100 grams of oil.
d *D*, over-all yield.

Kirchner and Miller report that the terpeneless oils produced by chromatography in each case had a delicate odor showing much improvement over the original oil. In comparison, none of the commercial terpeneless oils examined had the same odor quality. These commercially produced terpeneless oils, when examined by the chromatostrip method, showed considerable quantities of hydrocarbon fraction still present. These investigators feel that the process is one which affords a simple means of preparing terpeneless and sesquiterpeneless oils which are so valuable in the flavoring and perfuming industries. The possibility of obtaining these desired separations without applying heat to the reactive compounds found in essential oils, and at the same time obtaining better separation of the two fractions, should appeal to the producers and users of these products. The process can be easily adapted to large scale production as adsorption techniques have been used commercially in other industries. Experiments have shown that the silicic acid can be reused several times on the same column by replacing the nonterpene eluting solvent with hexane and repeating the adsorption-eluting process.

## Some Essential Oils from Argentina

A report on some volatile essential oils from San Luis and Cordoba has been presented by G. A. Fester and E. A. Martinuzzi (*Rer. facultad quim. ind. y. agri. Univ. nacl. litoral, Sante Fe, Arg.* 19:54, 1950 through *Chem. Abstr.* 45:7306, 1951). They state that an essence obtained from the dried leaves of *Satureja* (*Micromenia*) *odora* had the following properties:

**Specific gravity** ..... **0.9868**
**Specific rotation** ..... **24.5°**
**Index of refraction** ..... **1.4983**

This product was principally pulegone, but probably contained limonene.

The dried leaves of *Lippia integrifolia* yielded 0.97 per cent of an essence with the following properties.

**Specific gravity** ..... **0.9560**
**Specific rotation** ..... **0.95°**
**Index of refraction** ..... **1.4934**

In this material were *l*-limonene, dipentene, *l*-camphor and large quantities of sesquiterpenes. There was also a small amount of a crystalline compound with the formula $C_{13}H_{20}O_2$ melting at 176-7° C., boiling at 190° C. and with a specific rotation of −29.1° in chloroform. This compound was thought to be an ester or lactone.

Dried leaves of *Lippia lycioides* (*Aloysia ligustrina*) from Cordoba yielded 0.42 per cent of an essence with the following characteristics:

**Specific gravity** ... **0.9397**
**Specific rotation** .. **−2.98° to −4.5°**
**Index of refraction** **1.4975**

The oil contained cineole, *l*-limonene, large amounts of sesquiterpenes and possibly citral and verbenone.

Dried leaves of specimens of this plant from San Luis contained about 1 per cent of an oil with the following properties:

**Specific gravity** ..... **0.9261**
**Specific rotation** ..... **15.0°**
**Index of refraction** ..... **1.4822**

The oil contained *d*-limonene and a saturated ketone.

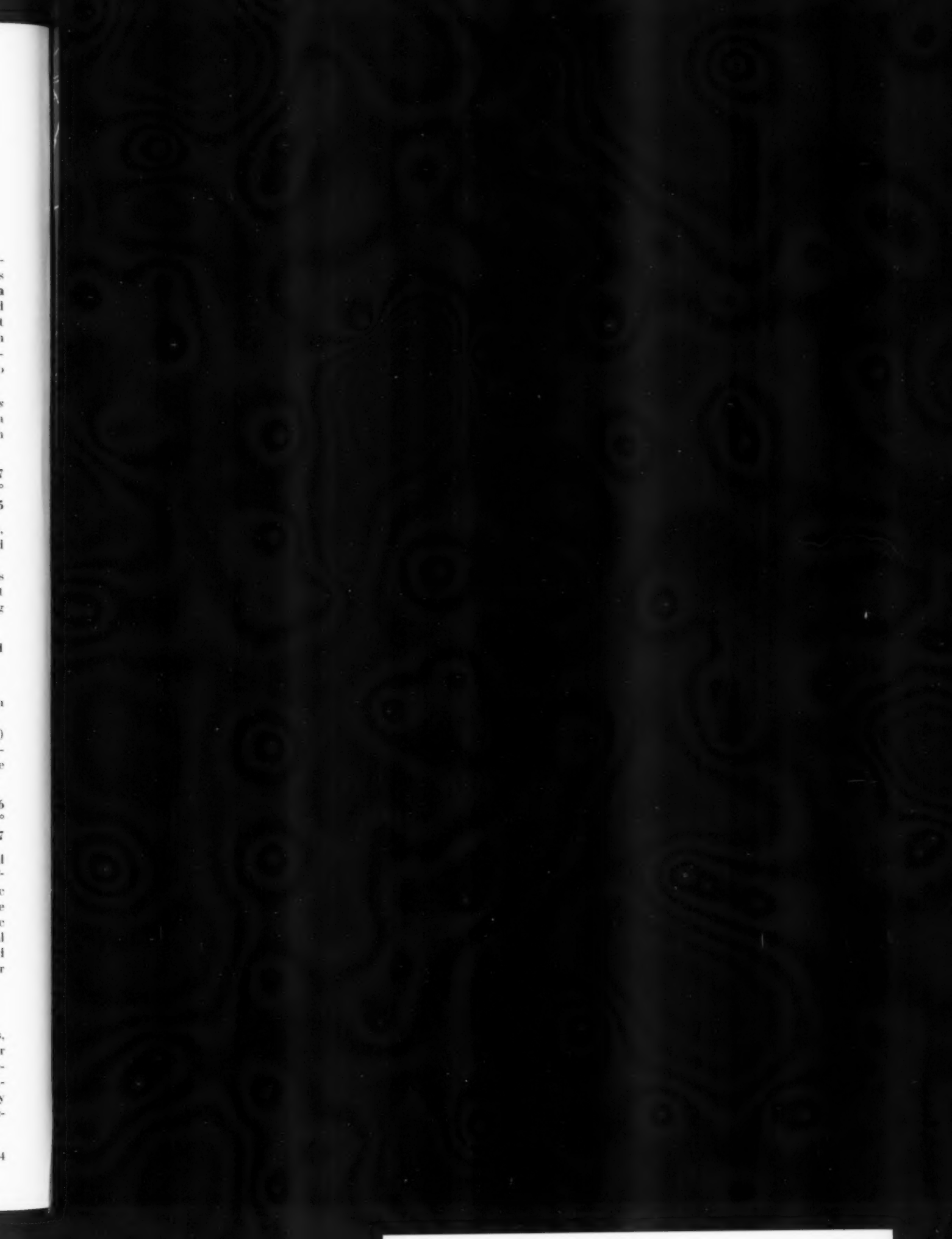
From the leaves of *Lippia* (*Aloysia*) *polystachia*, Fester and Martinuzzi obtained 1.75 per cent of an essence showing:

**Specific gravity** ..... **0.8846**
**Specific rotation** ..... **-5°**
**Index of refraction** ..... **1.4677**

This oil yielded sabinene, and small quantities of *alpha-d*-pinene and *l*-limonene. The semicarbazone of pinonic acid, prepared by oxidation of the pinene, formed bipyramidal anisotropic crystals rather than the octahydral crystals found by others. They found that *alpha-l*-thujone constituted 35 per cent of the oil.

## Separation of Ionones

In another report on violet perfumes, K. Seitz, H. H. Gunthard and O. Jeger (*Helv. Chim. Acta* 33:2196, 1950) describe the separation of alpha- and beta-ionone by fractional distillation. They point out that *alpha*-ionone and *beta*-



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# "BUT HOW'S IT GOING TO TASTE?"

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ionone form nearly ideal mixtures. This is shown both by the specific gravity and index of refraction of various mixtures and by the vapor-liquid equilibrium curve determined at 0.1 mm. in an Othmer type of still. Separation of a mixture of *alpha*- and *beta*-ionone was effected in an 80 plate Podbielniak Hyper-Cal column by using a 35:1 reflux ratio of 0.1 mm.

## Oil of Cyperus Microsia

In a report on the essential oil of *Cyperus microsia*, A. Fujita and Y. Hirose (*J. Pharm. Soc. Japan* 71:176, 1951) stated that steam distillation of 870 kg. of the plant yields one kg. of the oil, which has the following physical properties:

| | |
|---|---|
| **Specific gravity** | **0.9294** |
| **Specific rotation** | **−41.55°** |
| **Index of refraction** | **1.4996** |
| **Acid number** | **3.719** |

Fractionation of the oil yielded two portions which contained *alpha*-caryophyllene. Other fractions, boiling at higher temperatures, contained cadenene. Whether cadenene is derived from dehydration of cadenol or exists as cadenene in the plant is undetermined.

## Analysis of Camphor-Pinene Mixtures

A method for determining camphor in mixtures with pinene is given by A. D. Fortunato and H. Hourquebie (*Rep. Argentina Ministerio ind. y com. nacion, Direc. gen. ind. manuf., Inst. tecnol. Ser. A*, No. 4, 3, 1950 through *Chem. Abstr.* 45:6541, 1951) as follows: Treat a mixture of camphor and pinene (1 Gm.) with 1 ml. of a solution (10 Gm. 99.5 acetic acid plus 1 Gm. concentrated sulfuric acid) in an Erlenmeyer flask in a water bath at 50° C. Shake the solution for 10 minutes, cool, treat with 100 ml. of a saturated sodium chloride solution, and titrate with 0.5N sodium hydroxide saturated with sodium chloride to a phenolphthalein end point. Under these conditions, maximum esterification was: camphor, 78.6 per cent and pinene, 26.1 per cent. With mixtures of known composition, a graph was constructed in which the percentage of terpenes esterified was a function of the concentration of each in solution. From the amount of esterification in a mixture, the concentration of each terpene could be calculated. Under the same conditions at room temperature, with 98 per cent formic acid, 100 per cent camphor and 15.45 per cent pinene were esterified. With a mixture of 100 Gm. of 87 per cent formic acid and 73.6 Gm. of acetic anhydride as the reactant, 97.2 per cent of camphor and 18.4 per cent of pinene were esterified.

## Resinoids

In discussing resinoids and their uses, H. Janistyn (*Parf. u. Kosm.* 32:221, 1951) points out that, initially, these materials were produced only from resinous drugs, but soon extracts of other odorous plants were made and sold under the same descriptive term. Many resinoids contain chlorophyll, carotin and pigments and their color is dependent on the solvent used for extraction. Many firms also produce partly de-colored as well as natural resinoids under a variety of trade names. The odorous properties and concentrations vary according to the manufacturing process. Thus, the benzene extract of castoreum smells stronger than the resinoid made with spirit, while the resinoid of oak moss made from the alcoholic extract smells much better than the one from the benzene extract. Other products are obtained from the petrol ether extracts. In almost all cases, removal of color also causes some changes of odor. Purified resinoids are superior to their corresponding essential oils in quality of odor and concentration. In contrast to many essential oils, resinoids have no terpenous or camphorous note which appears during steam distillation of the drugs.

Janistyn warns against adulteration and the "pseudo-resinoids" consisting of high-boiling resinous solvents, artificial resin esters and containing none or a very modest addition of true resinoids. In most cases they contain essential oils or aromatics to substitute the odor of the resinoid. This authority stresses that the proportion of resinoids in a composition requires careful consideration not only because resinous fixatives are specific for certain odors, but also because of the fact that too large a quantity can be detrimental, while a small one might be without effect. Janistyn also points out that experienced perfumers often limit the use of resinoids or do without them altogether because of the following disadvantages inherent in these compounds: (1) Modern perfumes containing 12 to 18 per cent aromatics require appreciable quantities of resinoids. The trend is towards only faintly colored perfumes, but even the de-colored resinoids cause perceptible coloration. (2) Some resinoids assist the "souring" of perfumes or are the actual cause. In particular, these are products containing benzoic acid, cinnamic acid or unstable resin complexes. (3) Nearly all resinoids reduce the development of the fragrance. (4) Spots on clothing made by perfume with resinoids are even more difficult to remove.

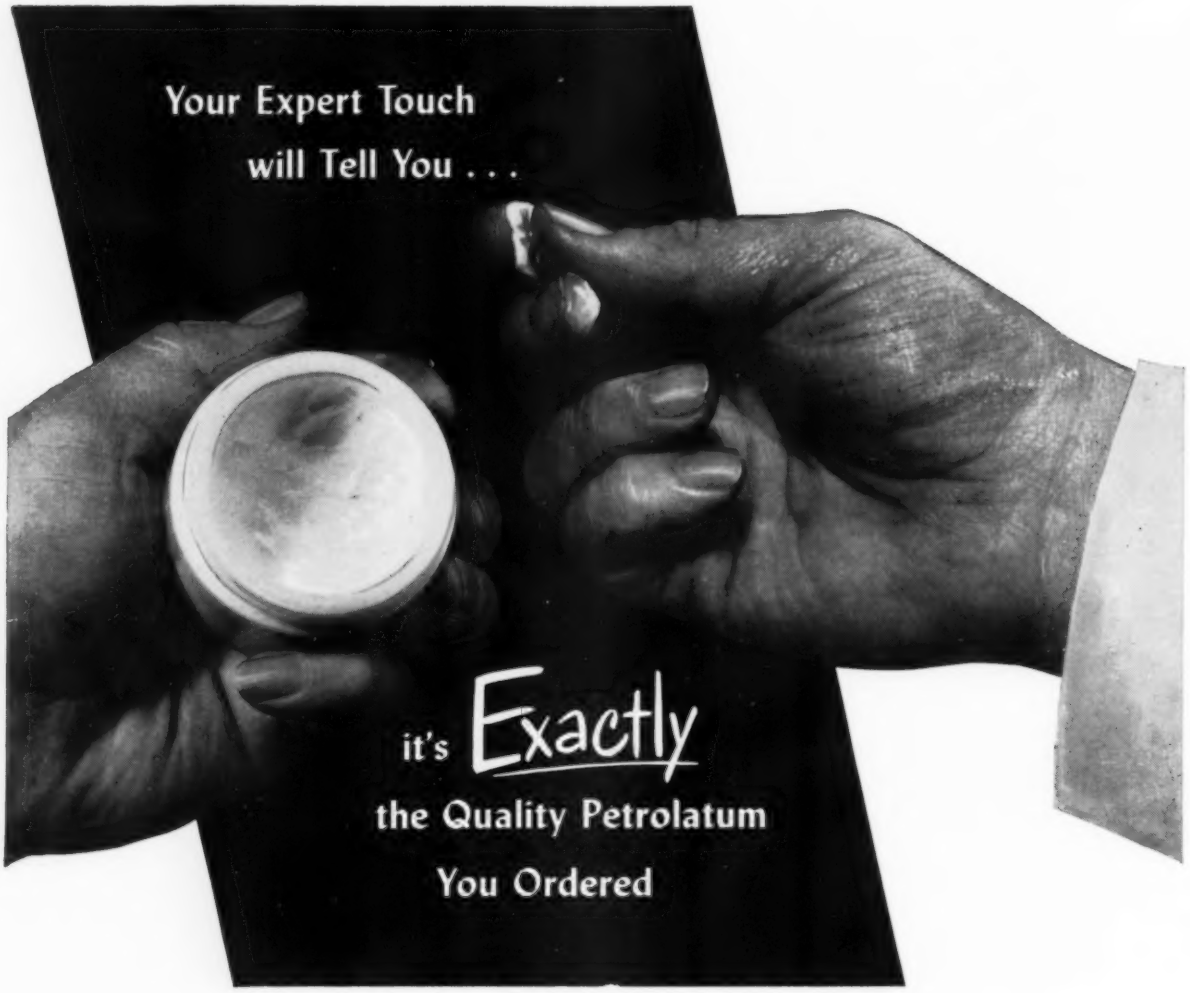
However, their disadvantages are less conspicuous in soap essences, where they can be used in large quantities, although discoloration must be watched.

## Musk Reproduction

In the synthetic reproduction of musk, says F. Carter (*Perf. & Essent. Oil Rec.* 43:296, 1951) research has led to three main chemical groups. Two of these groups, the large ring ketones and the large ring lactones, contain several important members. In perfumery, these products have a valuable "lingering" effect, and very small additions "lift" a perfume with a most fragrant result. In their manufacture, however, the producer finds himself often beset with exasperating difficulties due to low and varying over-all yields, and much study is still being devoted to the economic production of these materials.

The third group, the nitro-musks, provides three important perfumery synthetics known as Musk Xylol, Musk Ketone, and Musk Ambrette. None of these could properly be called a perfect musk reproduction, but they each have merits to be considered, according to the type of musk effect which is required. Thus, in a perfume, the role of an artificial musk may range widely from the provision of a generally sweet background, to the imparting of the fashionable "animal" note and the perfumer can obtain many attractive "near natural" effects from a careful blending of the synthetic musks.

In the manufacture of the nitro musks, says Carter, the general procedure is a stage-by-stage build up from materials as easily available as possible until only the nitro-groups have to be introduced. Great care is normally taken to ensure purity of the desired product from each reaction stage, as the trouble involved is amply repaid by subsequent saving in costs. Elaborate nitration arrangements are designed to guide that possibly violently destructive and oxidative reaction towards giving a high musk yield, and of unavoidable by-products only those which are easily removed. Commercial xylene is a convenient raw material for the manufacture of musk xylol.

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# Advancing Therapy

## Nucleic Acids in Cancer Diagnosis

According to a report by L. R. Cerecedo, D. V. N. Reddy and M. E. Lombardo, presented to the New York Section of the American Chemical Society on February 8, 1952, early diagnosis of certain types of cancer may be aided by analyzing body organs for nucleic acids. Preliminary studies indicate that the amount of nucleic acid in certain organs increases before the actual development of experimentally-induced tumors in mice. Nucleic acid concenration in the tissues of mice with transplanted tumors also increases during tumor development. If similar changes occur in human tissue, determination of nucleic acid content may become valuable in the detection of malignant tumors. Invariably, a significant increase in the nucleic acid concentration in the tissues during tumor development has been found. This increase is not restricted to such an active organ as the liver, but is also found in the lung, kidney, thymus, and lymph nodes in mice bearing the transplanted tumors. In mice with some types of tumors, the changes in nucleic acids could be related to the size and rate of growth of the tumor. When tumors in the mice disappeared, there was a pronounced drop in the nucleic acid fund in the spleen.

## Dextran Sulfate as an Anticoagulant

Dextran sulfate, says K. Walton (*Proc. Royal Soc. Med.* 44:563, 1951) has a heparin-like anticoagulant action. When prepared from dextran of molecular weight 35,000 and over, it is unsuitable for therapeutic use, causing precipitation of fibrinogen, agglutination of platelets and deposition of granular material in reticulo-endothelial cells. In contrast, when prepared from dextran of molecular weight 20,000 and under, it has no effect on platelets and causes no deposits in reticulo-endothelial cells in experimental animals. One typical batch of this material, when assayed against International Standard Heparin, had an activity of 17 to 20 I.U./mg. It was found to be effective by parenteral injection only. When given intravenously to rabbits, a dose of 5 mg./kg. of body weight reduced the clotting time from 19 to 3 minutes in an hour and a half, and a dose of 10 mg./kg. body weight reduced it from 54 to 3 minutes in 3 hours. Doses up to 0.5g./kg. body weight produced no toxic effects in the mouse, rat, rabbit, dog, or monkey. It seems probable that the anticoagulant action is due to the strong electro-negative charge upon the acidic groups, since it is opposed by strongly basic substances such as protamine. The presence of a co-factor in the serum or plasma is essential, and in its presence the action is that of an antithrombin. If further chemical trials are satisfactory, dextran sulfate may serve as a cheap synthetic analogue of heparin.

## DDS in Leprosy

In a report on the bacterial changes observed in cases of leprosy under treatment with DDS (4: 4'diaminodiphenylsulphone), E. Muir (*Leprosy Rev.* 2 2:67, July-Oct. 1951) emphasizes the effectiveness of small doses of the drug as well as the value of adjuvant vitamin $B_{12}$ therapy in those patients intolerant of DDS. The drug was given either by subcutaneous injection of a sterile 20 per cent suspension in pure cocoanut oil, in dosage of 1.5 ml. weekly, or orally in tablets of 100 mg. The latter method is satisfactory for strong healthy patients who can be trusted to take the drug regularly, but for the ordinary out-patient a weekly injection of 1.5 ml. is found to be safe and effective. The absorption rate of DDS is slow: after oral administration less than 10 per cent is recovered in the feeces, and traces can be found in the blood 14 days after cessation of a six weeks' period of treatment. In advanced lepromatous cases intolerant of DDS, weekly injections of vitamin $B_{12}$ resulted in an immediate hemoglobin increase and increased tolerance of DDS. In 58 cases treated with DDS there was an average improvement of over 20 per cent in the bacillary index and in 12 cases in which the original bacillary index was 10 or less there was an average improvement of almost 50 per cent. Advantages claimed for the drug, in addition to its slow absorption rate, are the small effective dose, and the low cost.

## Pertussis Control with Chloramphenicol

The promising preliminary results obtained with chloramphenicol (chloromycetin) in thirteen contacts of pertussis (whooping cough), in ten of whom the disease was arrested in the preparoxysmal stage, suggested that this method would be a convenient and effective way of controlling institutional outbreaks. In such outbreaks, where a large proportion of the children are often exposed to infection, they form a group of susceptible contacts particularly suitable for suppressive chloramphenicol therapy. In testing this idea, A. Bogdan (*Lancet* 2:1204, 1951) made investigations which demonstrated the successful use of chloramphenicol in the treatment of susceptible contacts in a day-nursery outbreak of pertussis. Early bacteriological diagnosis of infection, especially in the incubation period, proved invaluable to suppressive therapy. Striking clinical results were obtained with chloramphenicol begun in the incubation period or early in the preparoxysmal stage. The periods of exclusion from the day-nursery were greatly shortened by the rapid elimination of infectivity; greatly reducing the economic hardships arising from pertussis in the families concerned.

## Pentamethonium in Hypertension

V. Masini and P. Rossi (*Riforma Med.* 65:898, 1951 through *J.A.M.A.* 148:413, 1952) report that 6 patients with essential hypertension, 6 with hypertension and heart disease, 8 with malignant hypertension, and 10 with hypertension due to subacute and chronic nephritis were given intramuscularly 50 mg. of pentamethonium iodide in water solution. Responses occurred within 15 seconds after the injection. Systolic pressure dropped 60 mm. Hg and diastolic pressure 30 mm. Hg. The fall in blood pressure persisted five hours and reached its

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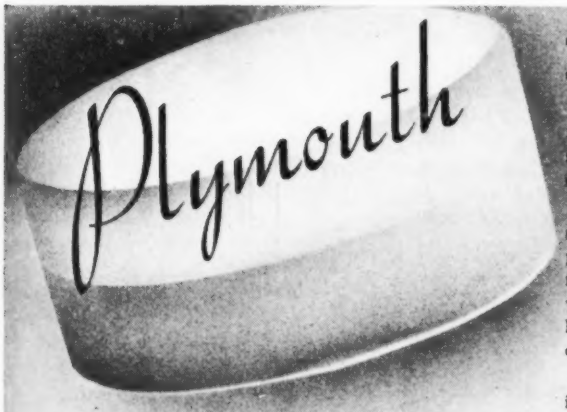


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maximum after one hour. Pronounced side-effects, like dizziness and symptoms of fainting, occurred when the patient returned to a standing position. Subsequently, 50 mg. of pentamethonium iodide in a 20 per cent concentration of polyvinyl pyrrolidone were given intramuscularly to the same patients. Systolic pressure fell 50 mm. Hg and diastolic pressure 25 mm. Hg. The hypotensive effect lasted six and one-half hours and reached its maximum one and one-half hours after the injection. Side-effects on arising occurred only in two patients. Best results were obtained in patients with essential hypertension associated with nephropathy and renal insufficiency, in whom the hypotensive effect sometimes lasted 48 hours. Electrocardiograms and blood flow recordings taken before and after the two injections showed no changes. Responses to the Hines and Brown test decreased after each of the two injections. The investigators, comparing the results, suggest that intramuscular administration of pentamethonium iodide in a 20 per cent concentration of polyvinyl pyrrolidone may become the treatment of choice for patients with hypertension. This preparation should be used with caution because it tends to accumulate in the organism, and glomerular filtrate probably decreases.

## Antibiotics in Dysentery

On January 18, 1952 in a conference on the use of antibiotics in tropical diseases sponsored by the New York Academy of Sciences, A. V. Hardy, R. P. Mason and G. A. Martin presented a study on the use of antibiotics in the treatment of bacillary dysentery. A favorable opportunity to assess the therapeutic value of the newer antibiotics in bacillary dysentery occurred in Korea during an outbreak of dysentery among prisoners of war held in South Korea. Laboratory and clinical facilities were established to asure reliable diagnosis and adequate hospital care. Only the more severe cases were admitted to hospital and those with typical findings of bacillary dysentery were assigned to therapy in rotation on pre-arranged schedules. Aureomycin, chloromycetin and terramycin were used in standard and low dosage. Sulfadiazine was employed in one series only. Untreated controls were included in each series. Some 1600 cases were studied.

The response to sulfadazine was very poor, both clinically and bacteriologically. Of 225 isolations of *Shigella* tested for sensitivity, 129 were highly resistant to sulfonamides. The dosage of the antibiotics in the first series was 2 Gm. initially and 0.5 Gm. every six hours for 4 days. There was a prompt clinical and bacteriological response. Two additional series with a much reduced dosage were followed. Here also, the response was satisfactory. It was concluded that 4 Gm. of any one of these antibiotics is a sufficient amount for the treatment of *Shigella* infections. An initial dose of 2 Gm. and 1 Gm. 12 and 24 hours thereafter is recommended.

In each series the three antibiotics were almost equally effective in relieving symptoms and in rapidly yielding negative cultures. Any one may be used with confidence in bacillary dysentery However, it was the impression of all clinicians that terramycin was measurably superior. The preliminary analysis of bacteriological findings led to the same conclusion. Polymixin was used in two dosage schedules. The drug had some value, but it was clearly inferior to the other antibiotics.

## Amino Acid Ointment for Pruritus Ani

Following observations on patients with pruritus ani, L. G. Bodkin (*Am. J. Surg.* 82:557, 1951) came to the conclusion that some form of protein must be applied to afford local relief. Various protein compounds were tried and finally amino acid mixtures were found most satisfactory. However, severe irritation occasionally resulted even from these applications and further study was required. With the assistance of E. Ferguson, various amino acid mixtures were made up, using a polyethylene base. Certain amounts of separate amino acids were added to the basic formula. Clinical observations were then made and it was noted that no single amino acid increased the speed or degree of relief. Instead, some of them, especially methionine and cystine, made the itching much worse. Methionine and cystine were extracted from the mixture and reduced to a minimum. With polyethylene base this made a highly satisfactory ointment. In all but a few cases of pruritus it has given relief within a few minutes. The application has to be repeated, as the itching recurs and sedatives may have to be given to those patients who are highly emotional. However, control of the problem of pruritus ani is obtained early whenever temporary relief can be afforded so quickly.

Improvement in the skin occurs fairly rapidly. In those who respond satisfactorily the whitened areas of skin disappear and the fissures between them heal. The skin becomes less fibrotic and finally regains normal elasticity. In a large proportion of the cases the amino acid ointment was discontinued after several weeks. Patients found that prompt use of this application at a time of threatened recurrence seemed to prevent damage to the skin.

## Hydrocortisone as a Local Antiarthritic Agent

In their report in the *Journal of the American Medical Association* (147:1629, 1951), J. L. Hollander, E. M. Brown, R. A. Jessar and C. J. Brown state that, when it is injected locally, hydrocortisone (17-hydroxycorticosterone or compound F) is much more effective than cortisone in suppressing the synovial inflammation of rheumatoid arthritis. The reason for this difference is unknown. Nearly 700 injections of hydrocortisone have been made into the joints of 129 patients without untoward effects. In 69 patients with rheumatoid arthritis injection of hydrocortisone into one or more joints has resulted in prompt local alleviation of symptoms and signs. The completeness of improvement has varied considerably, and the duration of benefit from each injection has varied from a few days to several weeks. Repeated injections have been equally effective. In 39 patients with osteoarthritis, injections of hydrocortisone into one or more joints has resulted in prompt relief of symptoms and signs. There has been consistently greater relief for longer periods in this condition than observed in rheumatoid arthritis. Repeated injections are equally effective and may maintain remission of symptoms for long periods. Preliminary trials with use of hydrocortisone locally in cases of various forms of bursitis, gouty arthritis, disseminated lupus erythematosus, traumatic arthritis, and ocular inflammations complicating rheumatoid arthritis have been encouraging. There has been an absence of systemic effects and adverse reactions from this local method of utilizing hydrocortisone. Cessation of injections has not been followed by exacerbations of the local inflammation but only by gradual relapse to pretreatment status. These observations suggest that the local administration of hydrocortisone may be of practical value in the management of certain local inflammatory states.

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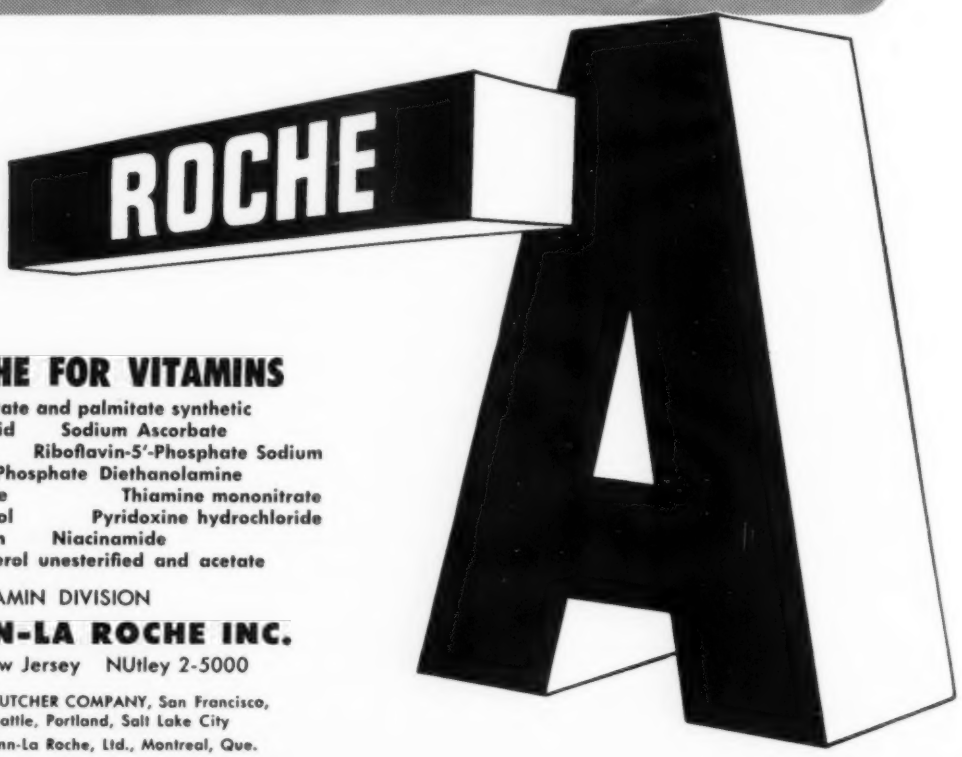


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# Abreast Of The Markets

## Markets Remain Quiet; Essential Oils Show Several Declines; Papain Is Very Firm; Cod Liver Oil Down

The market continued very much on the quiet side during March, with some downward trends in the essential oils and botanicals, and a few changes on the chemical side. The attitude of the consumers seemed to be that they would wait a little longer before making any large-scale purchases, in hopes that the prices would continue to drop. Consumers were also hesitant about stocking up too heavily on many of the commodities because the world economic picture is still doubtful and they were not sure whether the Korean war is gradually coming to an end or not.

Especially affected by the troubles in Asia are both anise and cassia oils which have been banned from American shores ever since the embargo was enacted. At the moment it is reported that there are huge quantities of the oils awaiting shipment. When the embargo is lifted there will probably be a wild rush to ship the material to the United States, and then it will become a flood on the market.

The citrus oils have become more stable, after a period of falling prices. There is plenty of orange oil available, but, contrary to last year's position, the supply is not overwhelming. Italian lemon oil has become quite firm and is rather scarce, a factor which had a similar effect on the California oil.

The price of menthol continued to fall in March so that it is now approaching a more normal figure at the $6.50 level, and glycerine prices fell off 6c to 34½c a pound.

Another reduction was felt in cod liver oil which dropped 20c a pound, one factor said to be the competition of the synthetic vitamins.

All in all, the general tone of the market seemed to be on the quiet side, reflecting the wait-and-see attitude of the consumers. In some cases, as with many of the botanicals, the lack of business was directly due to the lack of available replacements from the origin. In some cases, prices at the origin were so high that imports to this country were discouraged. At the same time, some members of the trade were offering material on spot at prices lower than those quoted at the origin, and these sources were not at all averse to selling, in some cases, to their own competition in order to move their stocks and convert them into cash.

### Ergot Down 25c

Ergot is another product which has dropped somewhat in price as a result decreased buying in Europe. Switzerland, until recently a very heavy buyer, has drastically curtailed ergot imports.

### Papain in Tight Position

Papain went up 50c to $6.95 a pound, which is a direct result of severe shortages at the origin. There is very little material on spot, and hardly any at all coming in from Ceylon. It has been reported that shipments from Ceylon are anywhere from one to 1½ years behind schedule. This means that if they deliver material which was ordered in December of 1950, for example, which at that time was priced at $4.35, or $2.60 a pound less than today's value, they lose that much on each shipment.

In some cases, according to spokesmen in the trade, the Ceylon shippers are attempting to escape these year-old contracts so they won't have to pay the difference between year-old prices and current ones. The method they use is to ship token deliveries of papain—deliveries which are either sub-standard or contain low-test material.

### Little Activity in Waxes

Both carnauba and ouricury wax were on the dull side in March, in spite of the fact that prices on spot in many cases are lower than replacement costs. The No. 3 refined, carnauba, was selling for about 95c a pound, and the No. 1 yellow, at about $1.15. The ouricury was being quoted at about 84c toward the latter part of the month.

### Arabic Gum Down to 16½c

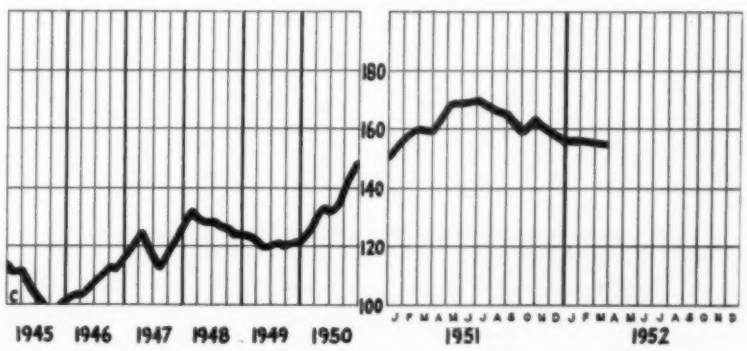
As a result of more favorable shipping prices on the arabic gum, amber sorts, the item was selling for 16½c a pound, but there was not too much buying taking place during the middle of the month.

### Cod Liver Oil Price Down

Import prices from Norway were reduced on cod liver oil last month by 20c a pound. It is now selling on spot at $1.65 a pound. A similar reduction occurred several months ago in the vegetable oil prices, and this is considered a follow-up of that development. There are several factors behind the decline, one being that consumers have not been buying as heavily this year as they did in the early part of 1951.

(*Continued on page 542*)

**25 Cosmetic Raw Materials—Unweighted Price Index. 1926 = 100.**




The cosmetic raw materials index went down from 157.1 to 156.1. Balsam Peru, balsam tolu, glycerine and menthol were lower.

Prices quoted in this section were current on the first of this month.

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## Refined Glycerine Drops 6c in Face of Large Synthetic Stocks; Alcohol Steady; Menthol Price at $6.50, Balsams More Favorable

Refined glycerine prices went down to 34¼c a pound in March, to a level which had not been maintained since July, 1950, when the price was 29¾ and August, 1950, when it went up to 35¼c a pound. Spokesmen indicated that there was a very plentiful supply of the refined material which would easily handle the future demand, even if it becomes much greater as a result of stepped up military operations. The sufficient supply on hand has been laid to the large supply of synthetic material on hand which has taken the pressure off the refined glycerine. Up to the present time, the military demand for glycerine has not changed to much of a degree, and the increase in consumption which has been anticipated has not materialized yet.

### No Change in Alcohol

The price of alcohol continued steady during March, and the entire picture tended to ease off further, one softening factor being that the government's stockpile in synthetic rubber has just about reached the goal previously set by the Board. By the latter part of last month, the molasses problem still had not been solved. The fermentation alcohol producers in this country persisted in their resistance to the 20c price on blackstrap molasses, and the Cubans continued to declare they would not reduce it. It appeared virtually certain that the Cubans would be forced to strike up a compromise before long in view of the lack of storage space on that island.

Early last month the alcohol tax unit of the Bureau of Internal Revenue, Treasury Department, released the following data on the supply, production, withdrawals, and stocks of ethyl, completely denatured and specially denatured alcohol during the month of January, 1952, as compared with January, 1951.

**Production**

| | Proof gallons | |
|---|---|---|
| | 1952 | 1951 |
| Ethyl | 42,252,588 | 41,466,086 |
| *Completely denatured | 75,028 | 75,047 |
| *Specially denatured | 26,030,992 | 17,782,608 |

**Withdrawls**

| | Wine gallons | |
|---|---|---|
| | 1952z | 1951 |
| †Ethyl, tax paid | 1,991,958 | 5,115,758 |
| tax free | 55,901,105 | 37,547,132 |
| *Completely denatured | 83,391 | 64,762 |
| *Specially denatured | 24,668,629 | 19,312,219 |

**Stocks**

| | Gallons | |
|---|---|---|
| | 1952 | 1951 |
| †Ethyl | 94,741,727 | 54,826,450 |
| *Completely denatured | 33,439 | 45,723 |
| *Specially denatured | 10,443,014 | 1,557,886 |

*Wine gallons. †Proof gallons.

### Menthol Continues Downward

While there was not much buying to speak of in the menthol market, except for immediate needs, the Brazilian material dropped to $6.50 a pound, duty paid. Chinese when available, and Japanese menthol were $1 higher at $7.50. Brazil seemed to be in quite a favorable position, with a reported 300 tons expected from the current crop. The Japanese apparently still were not over-anxious to compete with the lower-priced Brazilian menthol, and were in no rush to do much business.

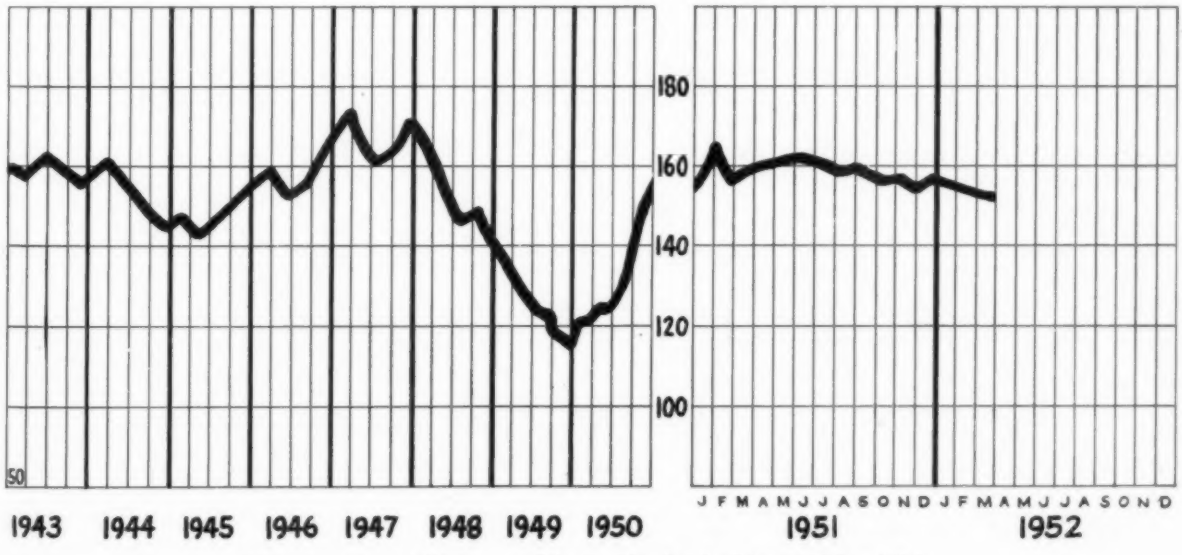
Although the Japanese menthol is preferred over the South American product, consumers were not willing to pay the dollar extra to get it and were satisfied with the $6.50 material. The Japanese market may reduce its prices down more closely to the level of Brazil in the next few months, if they become anxious to compete. Some spokesmen are of the opinion that the menthol has about reached the bottom pricewise at this time.

### Balsam Prices More Favorable

Both Balsam Peru and balsam Tolu went down in March, the former being quoted from $1.85 to $2.00, and the latter, from $5.35 to $5.75 on spot. Some spokesmen indicated that conditions were more favorable at the origin, with ample stocks on hand. Others seemed to think that this price reduction would prove to be only temporary because of firm conditions in the producing areas.

The reason behind the softening trend in the balsams is largely that the European countries which had formerly bought the items rather heavily, were tapering off on their purchases. Europe's interest had previously encouraged the producers at the origin to keep the prices up because these countries tended to buy the products at any price. Now that they have become more selective,

**50 Raw Materials—Weighted Price Index. 1926 = 100.**




The price index of fifty commodities for March fell off from 152.5 to 150.2.

## March Price Changes

**UP**

Cocoa Butter 3½c
Grapefruit oil 20c
Wormwood oil 15c

**DOWN**

Arabic Gum, Sorts, Amber ½c
Balsam Peru 5c
Balsam Tolu 75c
Birch Oil, Southern 20c
Carnauba Wax, No. 1 12c
North Country No. 3 13c
Cedar Wood Oil 5c
Citronella Oil, Ceylon 25c
Cod Liver Oil 20c
Ginger Oil 75c
Glycerine 6c
Lemongrass Oil 25c
Menthol $1
Ouricury Wax 4c
Rosemary Oil 5c
Safrol 5c
Vanilla Beans, Bourbon 10c

the price of the balsams is on the way down.

The balsam copaiba USP also followed suit with a 75c reduction to the level between $1.75 and $1.95.

### Vanilla Beans Steady

Bourbon vanilla beans were off 10c last month and quoted in the range between $2.90 and $3.25. Spokesmen in the trade stated that interest in the vanilla bean market has increased in the last few weeks, suggesting that business will become more active and the price more stable. Both the Mexican cuts and whole beans were unchanged, with the former in the range between $3.76 and $4, and the whole beans extending from $4.75 to $5.50.

### Cod Liver Oil Down

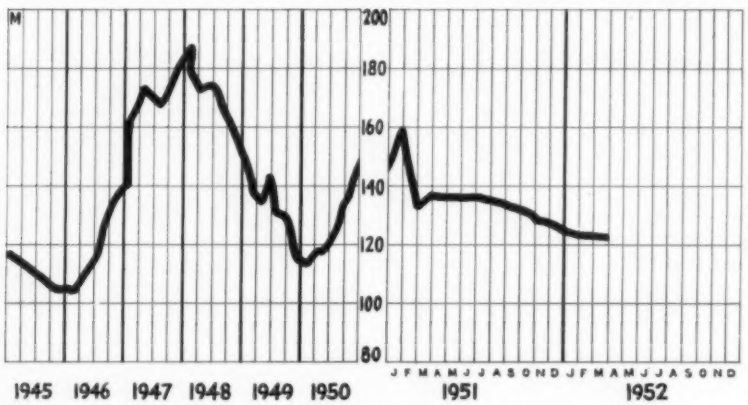
(*Continued from page 539*)

Some of them are probably still using up last year's stocks.

Norway is right now in the middle of its producing season, and, judging from last year's figures, 1952 will be just as good as 1951. This means there will be much more than enough cod liver oil available in the world market, a factor which it is thought has already begun to influence the price and cause this dip. Demand for the product has been cut into, in respect to both human nutrition and animal feeding, for the snythetic vitamin preparations have largely supplanted the use of cod liver oil.

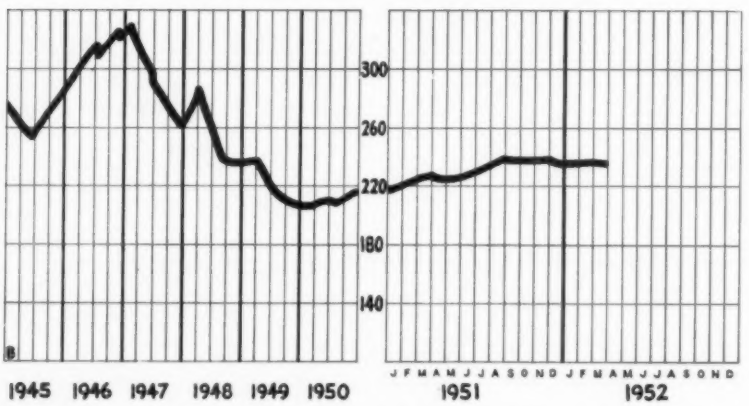
It is the concensus of the trade that the price will probably not go down any lower before the new material is available to the market. Some sources believe this is the lowest the price will go for some time.

**15 Medicinal Chemicals—Weighted Price Index. 1926 = 100.**




The medicinal chemicals index went down from 126.2 to 123.9. Cod liver oil and menthol were lower.

**15 Botanicals—Weighted Price Index. 1926 = 100.**




The botanicals index went down from 239.2 to 237.8. Balsam tolu was lower.

### Sulfaquinoxalin Down $1.50

This chemical, which is used in the veterinary field to fight poultry diseases, was reduced to $6.50 a pound for a 100-pound quantity last month.

### Cuba Storing Molasses in N. Y.

Authorities last month stated that about 75 million gallons of molasses had been shipped, and was on its way, to New York where it would be stored until distillers and manufacturers of stock food agree to pay the 20c a gallon price or until the Cuban dealers agreed to reduce the price to a figure nearer the distillers' wishes of 16c.

### Vanilla Exports—Madagascar

The year 1951 was a poor one for Madagascar vanilla, according to *Foreign Commerce Weekly*, which states that only 252 tons were produced in Madagascar, which, added to an estimated 50 tons from the Comoro Islands, makes a total of 302 tons. Production in 1950 amounted to 630 tons. Vanilla exporters state that the 1952 crop will be smaller than the 1951 crop, or about 225 tons from Madagascar and 50 to 60 tons from the Comoros, or a total of 275 to 285 tons.

"Visible" stocks of vanilla in the first week of February, 1952, were from 350 to 400 tons. Included in this amount were the 302 tons of the previous year's crop. Stocks of beans in France, according to a Paris commercial review, on December 31, 1951, amounted to 184.2 tons.

Exports of vanilla beans in the first 10 months of 1951 were 366 tons, of which the United States took 195.5 tons; France, 167.5 tons; Great Britain, 2 tons and South Africa, 1 ton. During the same period 2.7 tons of vanilla powder were exported to France. Exports of beans in 1950 added up to 578.7 tons.

### Lemongrass Oil Down

Lemongrass oil fell 25c to $2.20 a pound in the absence of any appreciable demand, although there was penty of oil on spot, and replacements were to be had for the asking at very reasonable figures.

### Chinese Oil Plentiful at Origin

With the anise oil still being quoted in the range between $1.70 and $2 and cassia between $5 and $6.50 during the latter part of the month, both of them were showing a good deal of stability in spite of their difficult supply position. In the case of both oils, spokesmen declare that there are large stocks in China priced at most reasonable prices, but of course, American dealers will not be able to make any purchases until the embargo has been lifted. When the embargo is finally removed, these two oils will undoubtedly flood the American market at very low prices.

### Cocoa Butter at 77c

Cocoa butter advanced during the first part of March from the February price of 73½c up to 79c and dropped down to 77c later in the month. The decrease took place even though the product was said to be much in demand at the time. Added to this is the fact that this year's crop of beans is reported as quite a bit smaller than the average.

### Orange Oil More Stable

Orange oil is in a far more favorable position than it was about a year ago when the market was glutted, and the price was at rock bottom. The cold pressed oil ranges from $1.90 to $2.75 and the American distilled, from $1.10 to $1.25. Stocks of both the Florida and the California oil were said to be in good supply and capable of satisfying the expected surge in demand which will develop through the Spring and Summer.

Producers in Florida are back on the job again, it is reported, and, while they are not producing the oil in such large quantities as they were a year ago, still, they are producing enough to keep up with the demand. The entire orange oil market seems to be much better stabilized than in 1951, and it appears that if the coming demand remains in normal proportions, the industry will be able to satisfy it without very much difficulty.

At the same time it should be pointed out that the Florida producers appear to be more cautious this time and do not intend to over-produce the orange oil as they did last year. In this way, it is expected, the price will be maintained at a more even level.

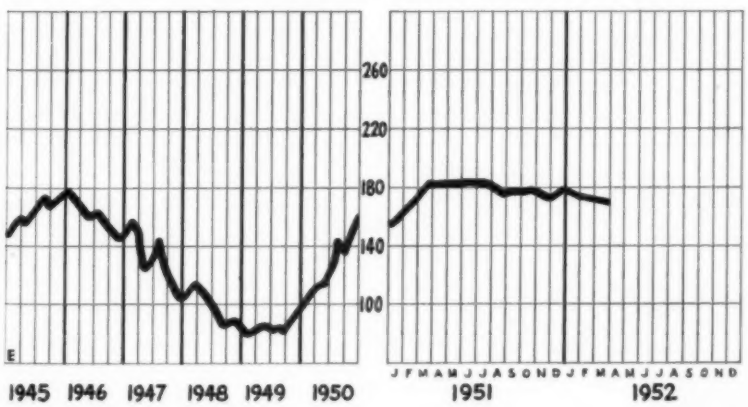
### Rosemary Oil in Ample Supply

While there was more than enough rosemary oil on the spot market last month to satisfy all needs, the demand was on the light side. According to reports in the trade, there was a good deal of oil in Spain which dealers there were desirous of selling. No transactions had been completed by the end of March, however, because the Spanish floor price on the oil was still higher than what American interests were willing to pay.

### Lemon Oil on Firm Side

Italian lemon oil was quite scarce last month, with very little of the lower-priced material available on spot. The higher priced oil advanced from $9 to the high figure of $10.50. At the same time, the California also became much more difficult to obtain. This oil, quoted at about $6, is expected to show a great deal more firmness in the next few months when the heavy buying spring and summer seasons arrive.

**15 Essential Oils—Weighted Price Index. 1926 = 100.**




The essential oils index fell from 171.1 to 168.0. Citronella oil was lower.

### Ginger Oil Down 75c

There were varied reports on the inside figure of ginger oil, but most sources set the price between $19.25 and $28, depending on grade. The demand was quite slack, and there was sufficient material on hand last month to meet it.

### Citronella Oil A Little Lower

The Ceylon citronella oil fell off from $1.15 to 90c last month, as dealers voiced the opinion that this was about the lowest it could fall with safety. Already, they say, the price is so low that it may tend to discourage production at the origin. Demand for the oil at the present time is on the brisk side, which, if it persists, may check the depressing price trend.

### Bergamot Remains Firm

In general there has been no change in the status of bergamot oil, although a few sources last month offered the oil at about $14.70. Most of the essential oil houses were quoting the oil at the higher figure of $15, and up to $17.50. No information has yet been received on the new crop, and there is no indication yet of knowing whether or not any relief for the oil is in sight.

### Patchouli Oil Very Soft

Some houses have been quoting patchouli oil in the range between $9.25 and $11 and others are reported to have offered the material for as low as $7.50 or $8, depending on the source. There was much more than enough oil on hand to satisfy the very weak demand which centered mostly around the higher-priced grades.

### Bois de Rose in Good Supply

Bois de rose oil remained in the range between $4.50 and $5, and the demand appeared to pick up somewhat last month. There was quite a bit of material on hand in the spot market which, dealers said, would meet all requirements.

### Lime Oil Not So Plentiful

While stocks of lime oil were available last month on spot, they were on the limited side, and it appeared that the item would become quite a bit tighter in the next month or two, especially with warmer weather coming on. Spokesmen did not know much about the new crop which will be available during the beginning of Summer.

The distilled oil was being quoted from $8.25 to $10, and the expressed oil, from $8 to $10.

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## Glutamic Acid

(*Continued from page 477*)

Unfortunately, not all investigators are of the same opinion. In the studies on experimental seizures made by Goodman and his colleagues,[25] glutamic acid failed to exhibit any appreciable anticonvulsant effect in a wide range of electrically or chemically induced convulsions. In contrast, is a study on mice, as cited by Bessman.[18] This work demonstrated the protective effect of glutamic acid against the mortality produced by frequent convulsions. This protective effect, Bessman observes, is perhaps analagous to the protective effect of glucose upon the liver when that organ is under stress.

Taking cognizance of the conflicting reports on the effects of glutamic acid in epilepsy, Pond and Pond[26] decided to study various aspects of the problem. Preliminary experiments suggested a difference between the effects of glutamic acid and its salts which apparently had not been considered by most other investigators. The clinical and electroencephalographic effects of glutamic acid and its sodium and potassium salts were investigated in 16 epileptics. The sodium salt was given intravenously in a few experiments, and orally in longer experiments to compare the acid and potassium salt. It was shown that the salts given orally significantly increased epileptic activity in the electroencephalogram, and the acid produced a decrease, but not at a statistically significant level. No consistent clinical changes were demonstrated, although five of eight patients given glutamic acid more than a month reported a temporary decrease in the number of seizures.

Of course, it was to be expected that the mental improvement obtained with glutamic acid in epileptic patients should attract the attention of workers in related fields. Although beneficial results have been reported in many cases, here again there is a difference of opinion concerning the value of the amino acid in the treatment of the mentally deficient individual.

In experimental work on this phase of glutamic acid utility, Zinimerman and Ross[27] observed significant differences in maze learning between rats fed a glutamic acid supplement and a control group fed only a basic diet. It was found that the treated group mastered the maze in less than half the time taken by the controls.

Using a somewhat more complicated procedure, Albert and Warden[28] reported similar benefit from glutamic acid supplementation. Their test was conducted by using a specially devised problem box that consists of a circular cage with a series of floor plates to be stepped on by the animal in a given sequence in order to obtain food. Of the eight rats on the control diet, only four could follow a two-plate sequence and only two of them could master the three-plate sequence. However, all nine of the glutamic acid-fed rats were able to follow the two-plate sequence, eight followed the three-plate sequence, and one was even able to master the five-plate sequence.

In another experiment[29] to determine the effect of glutamic acid, rats were given the three-table test of "reasoning." Although the results obtained were not as impressive as those obtained by the previous investigators, it was felt that further study was warranted.

Many of the clinical studies that naturally followed these experiments indicate that glutamic acid may have a place in the treatment of the mentally retarded. Albert, Hock and Waelsch[30] were the first to report the use of glutamic acid on humans. They gave the amino acid to eight persons with mental deficiency whose chronologic age ranged from six to 26 years but whose mental age ranged from two to eight years. Their intelligence quotient or I. Q. varied between 22 and 73. After the I. Q. levels were established, the patients were given glutamic acid or placebos. A significant rise of mental age was found during the administration of the amino acid. However, these gains were lost when the patients were receiving placebos. Restoration of the glutamic acid therapy again increased the I. Q.

Another similarly encouraging report was soon published by Zimmerman and his associates.[31] Their study was made to determine the effects of glutamic acid when fed to mentally retarded patients varying in age from 16 months to 17½ years. Various mental tests were applied before and after the administration of the glutamic acid. The results showed that, on verbal, motor and personality tests, definite improvement followed the glutamic acid therapy.

In commenting on these investigations, Woods[32] has pointed out that both of these preliminary studies demonstrated improvement in personality as well as in verbal ability and performance. After receiving glutamic acid, dull and inattentive patients became more alert, attentive and persistent in trying to solve the test problems given them.

Zimmerman and his co-workers[33] continued their studies with larger numbers of patients. In reporting the results obtained with 85 patients who completed one year of glutamic acid therapy, they[34] found that where the drug is effective it is able to raise the intelligence quota by 10 to 15 points; the maximum effect being reached within the first year of treatment. Thus, in those patients within striking distance of normal intelligence, glutamic acid can make the difference between mental defectiveness or a socially useful intelligence. Among the combined 35 borderline or high-grade defectives in the group, a total of 12, or 34 per cent, were mentally improved to a level of social usefulness. Failure to improve on glutamic acid was observed in children with severe emotional disturbances or in those with organic brain damage as diagnosed by the Rorschach inkblot test. Those patients with both emotional disturbances and organic brain damage showed the poorest response to glutamic acid. For the entire series of 85 patients, those with good behavior and no Rorschach evidence of organic disease averaged a rise of 9.4 points in intelligence quota after a year of therapy. Those with organic disease averaged 6.8

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points, those with "poor" behavior averaged 6.1 points, and those with both organic disease and poor behavior averaged only 5.6 points rise.

These workers also made studies of the effect of glutamic acid on the mental function of patients with mongolism. Following work with seven typical mongoloid patients Zimmerman and his colleagues[35] stated that, under the conditions of their experiment, glutamic acid definitely facilitates mental functioning in children with mongolism. Continuing this work, they[36] studied the effect of the amino acid in 30 definite cases of mongolism and 30 control cases of nonmongoloid retardation. They found that glutamic acid accelerated both mental and physical growth in mongolian idiocy. However, this improvement in growth, while geniune, was not as great as in the control group. There was also striking improvement in the physical growth over a six-month period of treatment.

In a somewhat different approach, Quinn and Durling[37] used vitamins in combination with glutamic acid in some of their subjects. In their study, 31 children of different clinical types were divided into three groups. The first group, which received glutamic acid alone for a period of six months, gained an average of 3.9 I. Q. points. The second group, given glutamic acid plus vitamins for six months, showed a gain on the average of 3.3 I. Q. points. The third group, receiving glutamic acid plus vitamin for twelve months showed an average gain of 4.8 points for the first six months of treatment. There was a small insignificant loss during the second six months for the group as a whole. The I. Q. gain for the full year was 4.4 points.

In reviewing their finding's Quinn and Durling concluded that glutamic acid appears to stimulate mental and physical activity to some extent in certain mentally deficient children. The mental gain ranged from 5 to 10 I. Q. points in certain children. They also noted that the most substantial part of treatment is made during the first six months of therapy. In comparing their results with those of Zimmerman and his associates, Quinn and Durling point out that their findings are probably not as significant, in terms of large I. Q. gains, because they used a different technique of administering glutamic acid.

In discussing glutamic acid dosage and administration, Bakwin[38] emphasizes that the efficiency of the amino acid depends on its continuous use. Its favorable effects disappear quickly when it is discontinued. Glutamic acid, says he, may be administered in tablet, capsule, or powder form. It is dispensed in 0.5 Gm. capsules and tablets, and it may be incorporated in the food. It is best given at the end of a meal or immediately afterward. A suitable initial dose is 2 Gm., three times daily. The amount is increased gradually to the point where there is over activity and distractability and noncooperativeness of the child. When these signs appear the dose is gradually decreased. The dosage varies widely and has no relation to age.

Similarly stressing the importance of continuous administration, Waelsch[39] pointed out that the best

proof in the several glutamic acid experiments rests in the fact that in the placebo periods the patients showed a loss of their previous intellectual gain. This loss was regained only when glutamic acid was administered. In reviewing the then available data, Waelsch feels that these warrant the conclusion that glutamic acid increases mental activity in mental defectives and in animals and, in addition, decreases the incidence of seizures in some patients suffering from petit mal epilepsy.

Similarly in a review published in September, 1948, Woods[32] concluded that "Clinical and experimental evidence, in large measure, has contributed favorably to the recognition of the role of the amino acid, glutamic acid, in improving social behavior and intellectual performance in certain types of secondary mental deficiencies. These include depressed intellectual levels associated with epilepsy as well as certain types of mental deficiency such as feeble-mindedness or imbecility."

However, on the basis of newer work there are those[2] who do not give such a high rating to the effectiveness of glutamic acid. Some[40] feel that the evidence is not convincing, while others[41] contend that the earlier work lacked satisfactory controls.

This difference of opinion begins with the animal experiments. Scientists at several research centers have reported tests in which glutamic acid had little or no effect on the maze learning of rats.[42] Marx,[43] for example, was unable to confirm the earlier improvement reported in rat learning performance after ingestion of glutamic acid. Similarly, Stellar and McElroy[44] concluded from their tests that there is little evidence that the feeding of excess glutamic acid has a facilitating effect on the learning ability of the rat.

In clinical tests, Ernsting[45] reported that mental progress in mentally retarded children given glutamic acid was no greater than that observed in the controls. He stresses that, in evaluating the results of the various tests, the mental and physical condition of the child should be taken into account, as well as the learning of the test and the influence exerted by the special attention given to the child.

These factors were taken into consideration in the small number of cases studied by Kerr and Szurek.[46] They also stated that their results do not substantiate previous reports that glutamic acid will increase measurable intelligence. In the more extensive studies made by Loeb and Tuddenham,[47] monosodium glutamate was used instead of free glutamic acid. Following a detailed statistical analysis of the findings, these workers concluded that, since no significant difference between control and experimental subjects could be shown, a beneficial effect of glutamic acid in the treatment of feeblemindedness had not been demonstrated.

More recently, in an investigation of the effects of glutamic acid on the intelligence of a dull and juvenile mental defectives, Milliken and Standen[48] found no evidence that scores on personality tests were improved


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or that cognitive functioning was enhanced. Disappointing results from glutamic acid therapy and its failure to restore mental capacity in chromic paretics were reported by Kantor and Boyes.[49] Apparently a better response was obtained by Ewalt and Bruce[50] in the treatment of schizophrenia. They reported encouraging results from the administration of glutamic acid to a small number of schizophrenics.

Students of the subject have tried, of course, to explain or reconcile the divergent findings. At the experimental level, it has been reported[51] that both heredity and sex may determine whether or not brain function is improved by glutamic acid. Working with two strains of mice which respond to loud noises by going into convulsions, investigators have found that single injections in one strain markedly reduced the number of susceptible mice. When a second strain of mice, which were much more noise-susceptible, were injected, the beneficial effects were considerably reduced. With both strains, responses to glutamic acid varied with the sex of the animals.

In considering investigational procedures, Bessman[18] pointed out that the difficulty in evaluating the effect of glutamic acid as a means of improving mental function is threefold: (a) crudeness of the methods of testing intelligence; (b) inadequacy of controls; and (c) lack of knowledge of the nature of mental deficiency. In his opinion, if cases are selected according to the criteria of the original investigators, results similar to theirs can be obtained.

The attitude of many impartial observers is perhaps well summarized by Woods.[32] "Glutamic acid," says she, "is by no means a cure-all for all types of defective mentalities. Even in those cases which respond to treatment, the improvement is limited in degree and the mental gains are soon lost if treatment is stopped. The great significance of this piece of research is the basic finding that mental deficiency is not hopelessly unalterable; that there is a biochemicl as well as a psychiatric approach to the treatment of these unfortunate cases. The studies with glutamic acid represent a starting point for this new approach to the understanding of the biological mechanisms in relation to mental activity."

That further study is well warranted is indicated in an editorial[52] in the *Journal of the American Medical Association*. Here it was emphasized that, despite the challenge of current studies, any therapeutic measure which offers "even a glimmer of promise" in these conditions that were formerly considered hopeless merits full and objective consideration. It is quite possible that glutamic acid may give children of high-grade defective or borderline intelligence an added chance to become useful members of society.[42,53] The amino acid may also be a useful aid in the teaching of mentally dull children.[54]

Aside from its potentialities in the treatment of mental deficiency conditions, glutamic acid may have other therapeutic possibilities. It has been suggested,[55] for example, that glutamic acid might be used as a

salt replacement in the diets of persons with certain heart and kidney diseases. As a seasoning agent, glutamic acid is said[42] to be about half as potent as sodium chloride. In 1938, after tests on various salt substitutes, Schmitt[56] stated that sodium-free glutamic acid could replace sodium chloride in the diet of persons who show a tendency toward water retention in the tissues, as in cardiac or renal disorders.

Other uses, such as speeding recovery from coma, may derive from the observation that glutamic acid, like carbohydrate, can maintain the respiration of brain tissue.[18] Back in 1926, Nord[57] reported that the injection of glycine or glutamic acid in large doses produces hyperglycemia; the sugar curve being similar to that obtained when glucose is injected intravenously. Twenty-three years later, Mayer-Gross and Walker[58] reported on the use of intravenously injected glutamic acid to restore consciousness to persons in insulin-induced hypoglycemic coma.

Recent work by Beaton and his associates[59] suggests that the determination of plasma glutamic acid levels may be an aid in diagnosing malignant disease. In studies on 80 patients with malignant growths in various parts of the body, no significant correlation could be found between the type or location of the malignant lesion and the level of plasma glutamic acid. However, the mean plasma concentration of glutamic acid for the total group with malignant disease was markedly elevated above the normal mean, with only a small overlapping of ranges for normal and malignant groups. In contrast the mean plasma glutamic acid concentration in humans with benign growths is not significantly altered from normal. Therefore, it is suggested that the determination of plasma glutamic acid in subjects with undisclosed types of growths may prove to be a means of distinguishing between benign and malignant growths prior to operation.

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*(Continued on page 550)*


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A new year is really under way. New Year's Eve may be the official starting point but the opening of the Big League baseball season is the emotional one. In other words, the loudest champagne pop is in January obscured by a Leo Durocher pop-off in April.

•

At the present writing it seems the World Championship will be won by neither the American nor National Leagues but the Marine Corps. Giving the heavy hitting Ted Williams to the Gyrenes is about as necessary as sending Joe Louis into the ring with an axe.

•

In keeping with the times some cities will get their baseball in less happy circumstances. Certain clubs have been permitted to raise their box office prices. This is regarded by fans less desirable than raising batting averages.

•

Undaunted Brooklyn Dodgers face the new season with renewed hope. They feel they have better hitting, pitching and fielding than any other club in the league. (Besides, Uncle Sam may draft the whole Giant club.)

•

Most gratifying thing about baseball used to be an opportunity to see a game and get the sun at the same time. In this electronic age it's just a matter of time before TV dealers use sunlamps as premiums.

•

New faces come and go but Babe Ruth, Ty Cobb and Tris Speaker continue to typify baseball. They could always be depended upon to bat, run and throw and run. And more than once they staged a better fight than the promoters who hired the ball parks at night for the pro boxers.

•

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(*Continued from page 549*)


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## Antimetabolites and Their Mechanism of Inhibition

(*Continued from page 479*)

hence suppresses malaria by interfering with the reproduction of a malarial parasite. Another example is hydrocyanic acid, which poisons the respiratory enzymes and prevents the oxygen utilization by a cell. A noncompetitive inhibitory system as well as a competitive one, is frequently reversible as for example, $H_2S$, an otherwise violent poison, inhibits the toxic effect of mercury by forming mercury sulfide.

It is possible to prevent the full inhibitory effects of an antimetabolite. An example thereof, already mentioned is making more PABA available to microorganisms which are being destroyed by sulfonamides or v.v. That mechanism constitutes the first method of inhibiting an inhibitor, i.e. by adding more of the substance that is being inhibited. The second method of preventing an inhibition or inhibiting an inhibitor, is the addition of a substance which has a "sparing effect" on the material being inhibited, for example, adding choline to a system in which methionine is being inhibited. Either or both choline and methionine act as donors of methyl groups in transmethylation. A third method of inhibiting the inhibitor is simply to destroy it. A fourth method often make it possible to increase the functional concentration of an inhibited metabolite, by making its environmental milieu, such as the pH, more favorable to its more efficient functioning under its state of disability.

Does a consideration of the role of metabolites and their antimetabolites have a practical usefulness? Based on these considerations, the practical use of methylene blue arose in the treatment of cyanosis. Based on these principles is the knowledge of the anticoagulating quality of salicylates, since they interfere with the endogenous intestinal synthesis of vitamin K or its analogues. The subject is not academic merely because it concerns microorganisms, for one is concerned with microorganisms in disease and in infection. Moreover, microorganisms and animals have one lowest common denominator—the cell.

Antagonists will be recognized in the following short list:

| | |
|---|---|
| Sulfonamides | PABA |
| Succinic Acid | Malonic Acid |
| Nicotinic Acid | Pyridine 3-sulfanilic Acid |
| Pantothenic Acid | Pantoyltaurine |
| b-indoleacetic acid | Trypotophane |
| Arginase | Ornithine or lysine |
| Adrenaline | Epinephrine |
| COOH | $SO_3H$ |
| Inositol | Hexachlorophene |
| Thiamine | Pyrithiamine or Neopyrithiamine |
| Biotin | Desthiobiotin or Oxybiotin |
| Methionine | Ethionine |
| Vitamin K | Dihydroxystearic Acid |
| Pyridoxine | Desoxypyridoxine |
| Folic Acid | Methylfolic Acid |
| Estrogens | Methylfolic Acid |

Chemical structure has a profound effect upon biological activity. Competitive or noncompetitive inhibitors (neutralizers) are usually chemically structural analogues of the materials they inhibit. A slight change in the chemical structure of a drug may confer upon it an effect opposite from that desired.

On these premises, certain coclusions are warranted. The first conclusion concerns the indiscriminate mixing of two or more drugs particularly new drugs. Such a practice is unsound and may be dangerous. The second conclusion decries the use of a new drug under conditions in which no adequate data exist; for example, antabuse causes a profound deepening of thiopental anesthesia. The mechanism is one where antabuse inhibits the formation of an enzyme, xanthine oxidase and thus prevents the reduction of thiopental to a nonanesthetic analogue. The third conclusion is warranted in all scientific endeavors, namely, the need of a critical examination of so-called facts. In that task, there is a need to determine if a purported statement is a fact. The application of the label "fact" to a statement, does not make it a fact. When a statement has been determined to be a fact, a further examination is necessary to ascertain if the fact is applicable to a given conclusion. And in reading a conclusion, it must be established if the conclusion is within the evidence warranted by the facts.

## Coloring of Pharmaceuticals

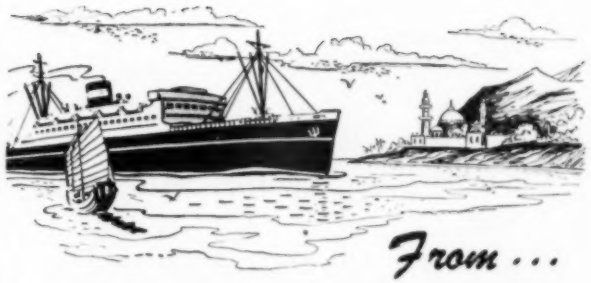
*(Continued from page 481)*

**Table VI**
**Dichromatism of F.D.&C. Red No. 2**

| *Dye—Milligrams per Liter* | *Color Obtained** |
|---|---|
| 50 (0.005% solution) | Bluish-red, magenta |
| 125 (0.0125% solution) | Scarlet |
| 300 (0.03% solution) | Orange |

*Viewed through a one-centimeter column.

Dichromatic concentration effects of this type occur far more frequently than is probably realized generally, particularly when mixtures of dyes are used. Many such effects can be seen when dyed liquids are dispensed

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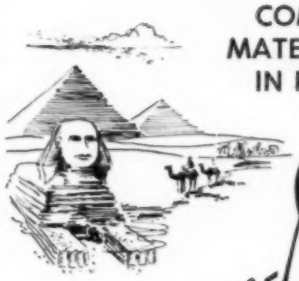

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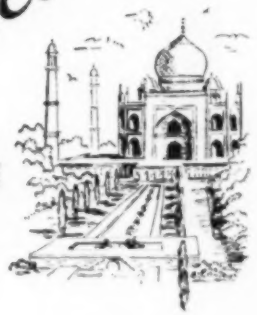

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in bottles of varying cross-section. For example, many preparations appear not only tinctorially weaker but also different in hue when viewed through narrow sections, as through the neck of a bottle, in comparison with their appearance viewed through the longer axis of the bottle.[13]

It should be noted that arriving at the answers to these last two problems demonstrates the application of knowledge of the phenomena of color, as well as of the properties of coloring agents, to the solution of coloring problems in this field.

10. *Problem:* From time to time requests are received for colorants to color strong oxidizing reagents. Accordingly it might be convenient to comment on these problems at this point.

*Answer:* As far as the use of dyes to color strong oxidizing reagents is concerned, there is no practical answer. None of the soluble colorants on the certified lists will withstand for prolonged periods the action of such oxidizing agents as strong solutions of sodium hypochlorite, for example, nor direct halogenation. There are three "vat" dye pigments which might be used to color mildly oxidizing products, see Table VII.

11. *Problem:* A creme product, originally colored pink, became mottled white and pink in appearance, with red-colored exuded drops visible also.

**Table VII**
**Pigments Resistafft to Oxidizing Agents**

| *Pigment* | *AATCC Name* | *Resistance* |
|---|---|---|
| D.&C. Red No. 30 | Helindone Pink | Very Good |
| D.&C. Blue No. 6 | Indigo | Very Good |
| D.&C. Blue No. 9 | Indantrene Blue GCD | Very Good |

*Cause:* The creme was essentially a water-in-oil emulsion, the water fraction being colored with D.&C. Red No. 19. The emulsion was not too stable and when water droplets settled out they naturally appeared dark and red in color. Improving the stability of the emulsion was indicated, of course, but better color results were obtained by adding an oil soluble colorant, D.&C. Red No. 18, to the oil fraction. In other words, colorant was added to both the inner and outer phase of the emulsion. In some emulsions it would have been possible to use D.&C. Red No. 37 instead of D.&C. Red No. 18 in the oily phase.

### Some Notes on the Percentages of Colorants to Apply

1. *Emulsions*—(a) Cremes may be colored with either dyes, pigments or mixtures of both. In preparations containing water, oils, greases, waxes and insoluble medicants, or even fillers or abrasives, it is good practice to color each fraction of the mixture separately, using water-soluble and oil-soluble dyes for the liquids, and pigments to color the insoluble ingredients. Alternatively, if but a single colorant be used, it is better to disperse a pigment in all phases of the emulsion than to use a dye soluble in but one phase. If white pigments are present, such as zinc oxide or titanium dioxide, the color effect is weakened to pastels or tints. To some degree the use of larger proportions of chromatic colorant will balance the tinting action of the white

pigments. Usually cremes are colored with 0.005 per cent to 0.001 per cent of dyes, or with 0.05 per cent to 0.1 per cent of pigments.

(b) In lotions and other mobile emulsions good color effects are obtainable sometimes by coloring only the outer phase of an emulsion. However, when the emulsion tends to separate into layers or when solid suspensoids tend to deposit as a cake on the bottom of the container, it is probably better to color each phase separately, as mentioned under "cremes," above.

2. *Liquids—Solutions*—Use 0.0005 per cent to 0.001 per cent of dye depending on the depth of color desired and the thickness of column or cross-section to be viewed in the container. Even 0.0001 per cent of dye may have a tinting or "bluing" effect. At these concentrations, it is often practical to use many dyes rated as sparingly soluble in the liquid present. Moreover, it is seldom that the small amount of dye present will permanently stain fabrics if spilled on them.

3. *Stains*—Dyes vary in their affinity for proteins. With most of them their tendency to stain skin, hair, tissue and bacteria varies greatly and is generally greater in acid solutions than in alkaline. Usually 0.1 per cent to 2.0 per cent solutions of dyes are tried when experimenting with stains".

4. *Powders*—Powders usually require about 0.1 per cent of colorants, whether dyes or pigments, to get pastel colors. The pigments may be applied by dry blending, as in ball mills. The dyes give beetter results if applied in solution. Frequently they are applied in alcohol or some other volatile vehicle having a minimum tendency to dissolve the powder being colored. Sometimes it is feasible to color strongly a master-batch of the powder, then disperse this colored master-batch like a pigment throughout more of the material. (See Table VIII).

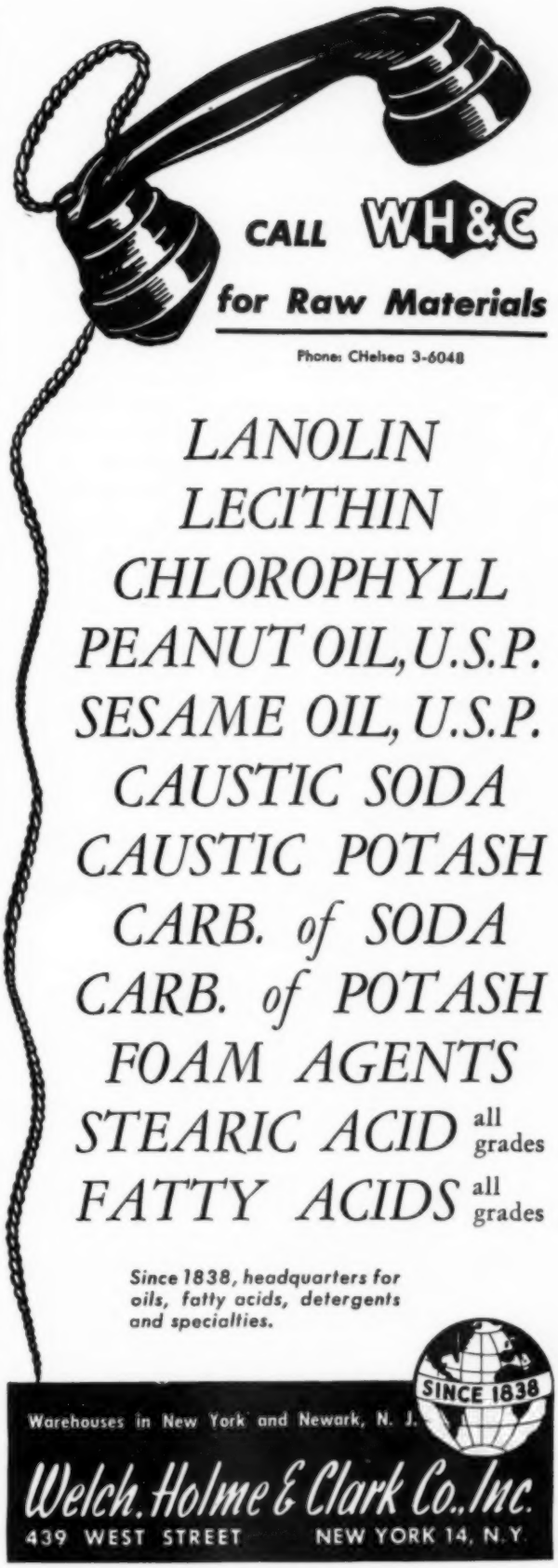
**Table VIII**
**Suggested Colorant Percentages**

| | *Percentage of Colorant* | |
|---|---|---|
| *Type of Product* | *Dyes* | *Pigments* |
| 1a.—*Emulsions—Cremes | 0.005% | 0.05-0.1% |
| 1b.—‡Emulsions—Liquids | 0.001-0.005% | |
| 2.—Liquids—Solutions | 0.0003-0.001% | |
| 3.—Liquids—Stains | 0.1%-2.0% | |
| 4.—Powders | 0.1% | 0.1% |

*Color both inner and outer phases with dyes, or all phases with dispersed pigments.
‡Sometimes good effects on coloring outer phase only.

Probably the services of professional and experienced colorists are more important in colorant selection than in the routine color-matching following such selection. "Cut and try" operators have been known to waste much testing time, materials, and effort. The skill shown in selecting the proper colorants for any particular application is a decisive measure of efficiency in this work, and skill in introducing substitute colorants often can cut inventories appeciably. A wide and exact knowledge of the application properties of colorants is essential in most work, but other factors are also important. Some of the factors to be balanced are discussed below.

1. *Colorant Inventory*—It is good practice to limit the

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number of different colorants used in coloring lines of pharmaceutical products. While there are 117 colorants on the certified lists, and some suppliers offer dozens of mixtures, most products can be colored with one-third of that number. Using "straight" colorants and making up mixtures as needed, gives a plant greater flexibility for color modifications than when proprietary mixtures are used. For example, blends of one yellow, one orange and one blue will yield a very wide range of green effects, which would require a large number of proprietary green mixtures to duplicate. Moreover, if the self-color of a drug varies, the plant making its own colorant blends, readily can change their colorant proportions to compensate for such variations. Practically all the colorant applications in this field requiring dyes can be filled successfully from a list of sixteen water-soluble and nine oil-soluble dyes. Actually twenty-one dyes would suffice for most work and even a minimum "palette" of sixteen dyes would fill the majority of needs in most plants. See Table IX.

**Table IX**
**Recommended Inventory of Certified Dyes**

| *Water-Soluble Dyes* | *Ester Hydrocarbon and Oil-Soluble Dyes* |
|---|---|
| F.D.&C. Red No. 1* | D.&C. Red No. 17** |
| F.D.&C. Red No. 2* | D.&C. Red No. 18* |
| F.D.&C. Red. No. 3* | F.D.&C. Red. No. 32* |
| F.D.&C. Red No. 4 | D.&C. Red No. 37 |
| D.&C. Red No. 19* | F.D.&C. Orange No. 2* |
| D.&C. Red. No. 22 | |
| D.&C. Red No. 33 | F.D.&C. Yellow No. 3* |
| F.D.&C. Orange No. 1*-x | F.D.&C. Yellow No. 4‡ |
| D.&C. Orange No. 4* | D.&C. Yellow No. 11 |
| F.D.&C. Yellow No. 5* | D.&C. Green No. 6‡‡-* |
| D.&C. Yellow No. 10 | D.&C. Violet No. 2* |
| F.D.&C. Green No. 1xx | |
| D.&C. Green No. 5 | |
| F.D.&C. Blue No. 1* | |
| F.D.&C. Violet No. 1* | |
| D.&C. Brown No. 1 | |
| D.&C. Black No. 1xxx-* | |

**May usually be replaced with F. C. & C. Red No. 32.
‡Can be replaced by a mixture of F.D. & C. Yellow No. 3 and F.D. & C Orange No. 2.
‡‡Yields blues on admixture with D. & C. Violet No. 2.
xNeeded for food adjuncts, but otherwise can usually be replaced by D. & C. Orange No. 4.
xxIt is cheaper to use mixtures of F.D. & C. Yellow No. 5 and F.D. & C. Blue No. 1 to get green effects. Use F.D. & C. Yellow No. 5 and D. & C.Green No. 5 when food adjuncts are not involved, as this combination has better fastness properties.
xxxMay be used in mixtures with D. & C. Orange No. 4 and a red to get brown effects.
*These sixteen dyes are about the minimum palette.

## 2. Specific Colorant Properties Of Aid In Colorant Selection

*-a-Water-Soluble Dyes.* The following brief summaries of the application properties of the *water-soluble* dyes listed in Table IX should prove helpful in selecting colorants for specific applications, and also indicates why they are recommended for a colorant inventory.

*-1- Red Effects*

*F.D.&C. Red No. 1—Ponceau 3R* imparts a scarlet color. It has good solubility in water (9 per cent) and about equal solubility in glycerine, is moderately soluble in glycol ethers and very sparingly soluble in alcohols; and is insoluble in esters, ethers, fats, fatty acids, hydrocarbons, ketones, oils and waxes. It has

good fastness to acids and to alkalies, poor resistance to strong reducing and oxidizing agents, tends to precipitate with metallic salts, but will color isotonic salt solution. Its outstanding properties are its bright scarlet hue, and very good to excellent resistance to alkalies, acids and light. It is an "acid" dye, with affinity for proteins.

*F.D.&C Red No. 2—Amaranth* imparts a magenta bluish red color. It has good solubility in water (18 per cent) and glycerine (7.5 per cent), is moderately soluble in glycol ethers, and sparingly soluble in alcohols; but is insoluble in most esters, ethers, fats, fatty acids, hydrocarbons, ketones, oils and waxes. It has good fastness to organic acids and some mineral acids and moderate fastness to alkalies and to light. Strong reducing agents and oxidizing reagents readily destroy it. In concentrated solutions it tends to form poorly soluble complexes and darkens in color with iron salts. In dilute solutions it is only slowly affected by alum. It can be used to color isotonic salt solutions, is an "acid" dye having affinity for proteins, particularly in acid solutions, and is therefore useful for coloring gelatin. Its solutions are markedly dichromatic,—see Table VI.

*F.D.&C. Red No. 3—Erythrosine* imparts a bluish red color and yields moderately bright pink tints. It is less soluble in water (11 per cent) but more soluble in glycerine and alcohols, and slightly less sparingly soluble in ethers and ketones than F.D.&C. Red No. 2. It is insoluble in hydrocarbons, oils and waxes. It varies from F.D.&C. Red No. 2 chiefly by being much faster to alkalies, but also much more sensitive to acids (its colorant-acid being only sparingly soluble in water), by being less fast to light, and by yielding brighter pink tints in alkaline media. It has affinity for proteins.

*F.D.&C. Red No. 4—Ponceau SX* yields yellower reds (more orangy scarlets), is slightly less fast to alkalies and is more readily precipitated by metallic salts than F.D.&C. Red No. 1 (see above), but otherwise its solubility and fastness properties are very similar to that dye. It is an "acid" dye, with affinity for proteins. It can be replaced in many applications by mixtures of F.D.&C. Red No. 1 and F.D.&C. Yellow No. 5 or F.D.&C. Orange No. 1 for foods, or by F.D.&C. Red No. 1 blended with D.&C. Orange No. 4 for drugs, this latter combination having the better general fastness properties.

*D.&C. Red No. 19—Rhodamine* imparts a more or less fluorescent bluish red color, yields bright, bluish pink tints and is one of the strongest dyes tinctorially. It has affinity for a great many materials (its solutions are almost "universal" stains) unites with tannins, various mordants and many amphoteric materials, and tends to be adsorbed by clays. It varies decidedly from all the other certified red colorants by being a "basic" dye, a rhodamine chloride (analoguous to ammonium chloride), a salt of a dye hydroxide, whereas the other certified red dyes are "acid dyes," usually sodium salts of colorant sulphonic acids. The rhoda-


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PENTOBARBITAL SODIUM
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Spermaceti—Ceresine—Red Oil—Yellow Beeswax—Composition Waxes—Stearic Acid—Hydistear

mine chloride tends to react with these "acid" dye sulphonates (probably very much as would barium chloride) to form sparingly soluble basic dye-acid dye complexes, generally in accordance with the following reaction:—rhodamine chloride + sodium amaranth sulphonate *rhodamine—amaranth sulphonate* + sodium chloride. Consequently rhodamine chloride is not compatible in water with most "acid" dyes. Nevertheless the complexes formed are often useful because they frequently are soluble in alcohols, glycol ethers, other non-aqueous liquids and mixtures of these with water. D.&C. Red No. 19 is characterized also by having very good resistance to reducing agents and little tendency to form insoluble metallic salt complexes in acid solutions. It is therefore the safest certified dye to use to color ferrous salts and ascorbic acid preparations. It can be adsorbed on certain inorganic gels, one important example being a sparingly soluble complex with aluminum hydrate, which is a widely useful colorant for cosmetics. D.&C. Red No. 19 is soluble in water, glycerine, glycols, alcohols, ketones, many esters, ethers and glycol ethers. It is insoluble in some esters, fatty acids, hydrocarbons and most oils and waxes. However, it is a useful addition to some neutral or acidic emulsions. It is only moderately fast to light; is resistant to acids, but alkalies tend to precipitate the sparingly soluble rhodamine base—see note below. It will be appreciated from even this brief summary of its properties that D.&C. Red No. 19 is one of the most useful of the certified dyes.

*Rhodamine Base* is formed from solutions of D.&C. Red No. 19 on the addition of alkalies, and often results when D.&C. Red No. 19 is added to alkaline emulsions. (Here again arises the fine, legal point as to whether this new form of the dye is "from a certified batch".) Rhodamine base is sparingly soluble in water, alcohols and ketones, is readily soluble in acids (reforming D.&C. Red No. 19 with hydrochloric acid or forming D.&C. Red No. 37 with stearic acid), is soluble or dispersible in many esters, fatty glycerides and certain waxes. It is sparingly soluble in ether and in toluene, yielding solutions that appear almost colorless but which stain articles dipped in them and then dried. The color imparted by the rhodamine base is usually without fluorescence but otherwise approaches closely that of the rhodamine salts.

*D.&C. Red No. 22—Eosine YS—Sodium Salt* imparts a bright, "clean", slightly fluorescent, very slightly bluish red color, yet yields yellowish pink tints. Its brightness of color and moderate resistance to aldehydes, reducing and oxidizing agents, and to alkalies are useful features. (It can be used to color some soaps, washing compounds and shampoos.) Its light fastness is poor. It is precipitated readily and rather completely by acids,—the insoluble colorant-acid is D.&C. Red No. 21. Although it tends slowly to form poorly soluble complexes with metallic salts and hydrates, it is not readily "salted-out" of solution and can be used to color isotonic solution and slightly alkaline brines. It is one of the most soluble dyes in water (33 per cent),

glycerine, glycol, and glycol ethers, is moderately soluble in alcohols, sparingly soluble in ketones, and insoluble in most esters, ethers, fatty acids, hydrocarbons, oils and waxes. It has affinity for proteins. It is not generally classified as an "acid" dye, because of the in solubility of its colorant-acid in water.

*D.&C. Red No. 33—Fast Acid Magenta B* imparts a bluish red color and has many of the properties of F.D.&C. Red No. 2. It is used whenever the dichromatic properties of F.D.&C. Red No. 2 prove to be unusually bothersome. It is however, currently much higher in cost and may not be used legally to color food, features that tend to limit its usefulness.

*-II-Orange Effects*

*F.D.&C. Orange No. 1—Orange I* imparts a slightly reddish orange color. It is the only water-soluble straight orange dye legally usable to color food and food adjuncts. It is an "acid" dye with affinity for proteins. It is soluble in water (6 per cent), glycerine (6 per cent), glycols, and glycol ethers, sparingly soluble in alcohols, and insoluble in esters, ethers, fats, fatty acids, hydrocarbons, ketones, oils and waxes. It has moderate to good fastness to light, moderate fastness to acids and moderate to poor fastness to alkalies. Reducing agents readily destroy it, it has poor resistance to oxidizing reagents, and with metallic salts it readily forms insoluble complexes. Slightly duller, but somewhat faster color effects can be obtained by using a mixture of F.D.&C. Red No. 4 and F.D.&C. Yellow No. 5; or where food adjuncts are not involved, it can be replaced with D.&C. Orange No. 3 (faster to light), or by D.&C. Orange No. 4 which has generally better fastness properties, although currently both of these latter oranges are higher in cost.

*D.&C. Orange No. 3—Orange G* imparts a bright orange color. This is the fastest to light water-soluble certified orange dye. In most media its properties approach those of F.D.&C. Orange No. 1, although it is generally somewhat more resistant to reagents.

*D.&C. Orange No. 4—Orange II* imparts a bright orange color. It has about double the tinctorial power of D.&C. Orange No. 3 and is tinctorially stronger than F.D.&C. Orange No. 1, and has better fastness properties than the latter product. It can be used to color isotonic solutions, but the presence of salt reduces its solubility,—see Table III. This dye is a good basis for colorant mixtures to get a wide range of brown effects, often being blended with 10 per cent to 40 per cent of its weight of D.&C. black No. 1 and with 5 per cent to 20 per cent of its weight of F.D.&C. Red No. 2 for this purpose.

*-III-Yellow Effects*

*F.D.&C. Yellow No. 1—Naphthol Yellow S—Sodium Salt* imparts a slightly greenish yellow to canary yellow color. It is soluble in water, yielding 18 per cent solutions at 86°F. (30°C.), but is much less soluble in cold water, yielding about 4 per cent solutions at 39.2°F. (4°C.)—see Table II. It is soluble in glycerine and glycol, moderately soluble in glycol ethers, sparingly soluble in alcohols and ketones and insoluble in most


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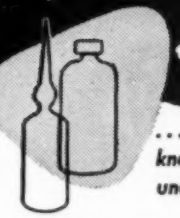

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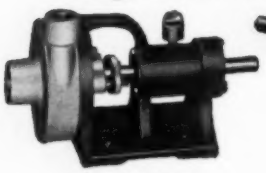
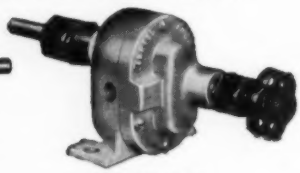

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esters, ethers, fatty acids, hydrocarbons, oils and waxes. Its fastness to light is rated "moderate", and it has good resistance to acids and alkalies. Its resistance to reducing and oxidizing reagents is poor to moderate, and it tends to form precipitates with metallic salts and hydrates. It has affinity for proteins, especially in acid baths. Some persons consider its bitter taste, the fact that it is a nitro-derivative, and its higher relative cost are adverse features.

*F.D.&C. Yellow No. 5—Tartrazine* imparts a slightly greenish yellow color. This is usually considered to be the best and most economical certified, water-soluble yellow dye for general use in pharmaceuticals. It is highly soluble in water, although temperature is important: about 21 per cent at 86°F. (30°C.) and about 5 per cent at 39.2°F. (4°C.), and frequently its solutions appear almost orange in color. 8 per cent solutions can be made in glycerine; it is moderately soluble in glycols and glycol ethers; and insoluble in esters, ethers, fatty acids, hydrocarbons, ketones, oils and waxes. It is the fastest to light F.D.&C. yellow, has good resistance to acids, moderate fastness to alkalies, poor resistance to oxidizing reagents, is destroyed by strong reducing agents, and slowly forms precipitates on the addition of metallic salts to its solution in water, but can be used to color isotonic solutions. It is an "acid" dye, having affinity for proteins. On being mixed with F.D.&C. Blue No. 1 or D.&C. Green No. 5 it yields a wide range of greens, usually at much less cost than when the unblended certified green dyes are used.

*F.D.&C. Yellow No. 6—Sunset Yellow FCF* imparts a reddish yellow color. It is highly soluble in water and its solutions are affected by temperature to a somewhat lesser extent than F.D.&C. Yellow No. 1 and F.D.&C. Yellow No. 5,—yielding about 23 per cent solutions at 86°F. (30°C.) and 10 per cent solutions at 39.2°F. (4°C.) It is soluble in glycols and glycol ethers, sparingly soluble in alcohols and insoluble in esters, ethers, fatty acids, hydrocarbons, ketones, oils and waxes. It is not as fast to light as F.D.&C. Yellow No. 5 nor as F.D.&C. Yellow No. 1, but otherwise approaches them closely in general fastness properties. It is an "acid" dye, having affinity for proteins. It can be replaced in most applications by a mixture of F.D.&C. Yellow No. 5 and F.D.&C. Orange No. 1 at some slight saving in cost.

*D.&C. Yellow No. 10—Quinoline Yellow—Water Soluble* imparts a greenish yellow color, being the greenest water-soluble, certified, yellow dye. However, probably its most useful feature is its "very good" resistance to reducing agents,—it can be used with ascorbic acid, for example. It is much less fast to light, but otherwise approaches closely the fastness and solubility properties of F.D.&C. Yellow No. 5. It is an "acid" dye having affinity for proteins.

(*To be concluded*)

## Behind the Clove Oil Shortage

(*Continued from page 475*)

the larger producers. Zanzibar's very livelihood depends almost solely on cloves, and it behooves that island

to guard its means of existence well. In Madagascar the clove is one of several crops, including coffee, rice and vanilla beans, and when the clove price is low, the trees are often neglected. The Clove Growers Association is well established in Zanzibar and keeps close check on production and exports; Madagascar has no such binding unit. The larger island has found itself in the path of frequent cyclones which have destroyed large crop areas from time to time; not so in Zanzibar and Pemba.

But these tiny islands are not entirely free from danger. Authorities state that the dreaded disease, "Sudden Death," which has long been a destructive force in the British protectorate, has now reached the proportions where it has killed almost half of the trees on Zanzibar and is advancing to Pemba. Growers hope the scientists studying the disease, which kills trees without warning, will be able to stamp it out, or at least control it. For the present, all they can do is keep replanting and maintain a constant number of healthy trees.

Now that the price of cloves is up to 80c a pound, Madagascar growers may decide to increase their yields and so help ease the supply problem, but this development would take quite some time and would not benefit American oil distillers to much extent.

Since the over-all world demand for cloves, according to estimates, hovers around 12,000 tons, or 24 million pounds per year, the United States which imported a little over 4.5 million pounds in 1950 and 1.95 million last year, is by no means the most important consumer of cloves. This is in contrast to 1945 when, during the middle of the war most of the eastern countries were knocked out of the commerce picture, the U. S. imported 12.1 million pounds.

Whether the United States buys extra quantities of the spice for distilling purposes, or buys the oil already distilled, will have little effect on the world picture. The producing countries do not have to reduce their prices on cloves to accommodate O.P.S. rulings in this country, for if we don't buy them, there will be that many more cloves to go around among the other consuming nations.

In other words, if the American clove-oil industry is to be helped at all, that aid must come from our own government. Men in the industry firmly believe Washington should take note of the hardships the O. P. S. ruling has caused and should make that regulation more amenable to the new conditions which prevail today.

## Patent Thoughts and Trends

*(Continued from page 531)*

problem, A is the sole inventor. B's rewards whatever they may be have to be in some other form. Consequently, where two or more people have worked or collaborated on a matter, the patent attorney should be fully advised as to how the invention was made and his decision in the matter should be followed.


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### Inventor and Owner Distinguished

Quite apart from the question as to who the inventor or inventors are is the question of who owns the invention. If one is employed by another to do research work and a patentable invention in the field of the employment is made, obviously the inventor is not the owner of the invention but the employer is. However, employees other than those who are hired to invent own the rights to any invention that they may make while working for their employers. If the invention was made on the employer's time and with the use of his material and facilities, the employer would be entitled to a shop right which is merely an implied license that the employer has to make, use and/or sell the invention without paying anything to the inventor. In such a case, the employer cannot license anybody else.

*(To be continued)*

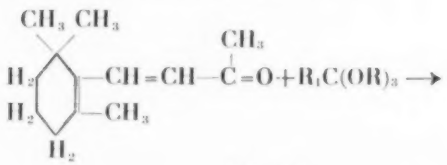
### Synthesis of Vitamin A

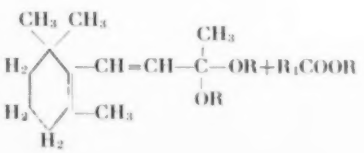
Recent patents of more than passing interest dealt with the synthesis of Vitamin A, the preparation of zinc and aluminum sulfamate antiperspirants and a novel phenolic material said to be useful for pharmaceutical purposes.

While patents dealing with the synthesis of Vitamin A have been somewhat numerous in the last 5 years or so, two recent patents believed to be rather unique were issued to John William Copenhaver. These are U.S. 2,586,305 and U.S. 2,586,306. Their uniqueness lies in the fact that they are assigned to General Aniline & Film Corporation and these patents are believed to mark the entry of General Aniline in the synthetic Vitamin A field from the standpoint of patent protection. A second distinguishing characteristic of these patents is that they deal with processes in which the side chain unsaturation is not increased until an intermediate having the carbon skeleton of Vitamin A itself is formed, the additional double bonds of the final product being introduced only after the carbon skeleton of the final product is complete. Indeed, U.S. 2,586,306 eliminates all of the side chain unsaturation as well as making it possible to eliminate even the unsaturation in the nucleus of beta-ionone.

The steps involved in the process of U.S. 2,586,305 are the following:

1. Conversion of beta-ionone to a ketal thereof by reaction with an ortho-carboxylic acid ester, as indicated by the following equation:

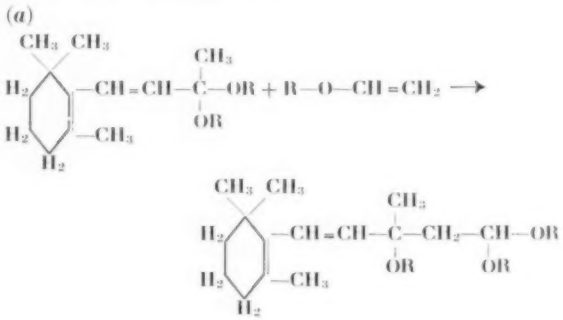




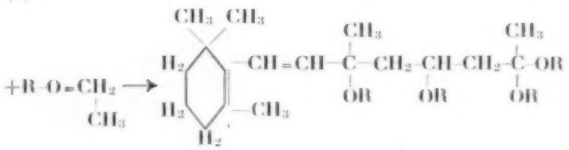
($R_1$ being hydrogen or a hydrocarbon radical, and R representing the residue of an alcohol.)

2. Condensation of the resulting beta-ionone ketal, successively, with 1 mol of an alkyl vinyl ether, 1 mol of an alkyl isopropenyl ether, and 1 mol of an alkyl vinyl ether, forming a series of ether acetals in accordance with the following equations:

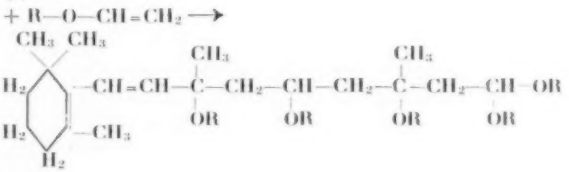
(*a*)



(*b*)

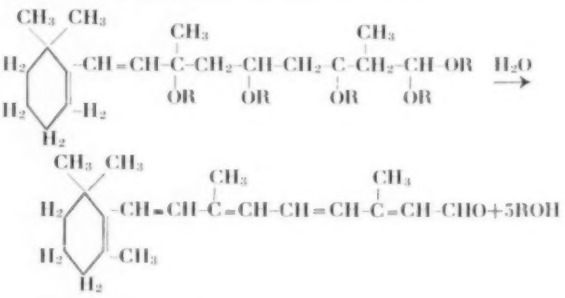


(*c*)



(R representing the hydrocarbon radicals of the ketals and of the vinyl or isopropenyl ethers.)

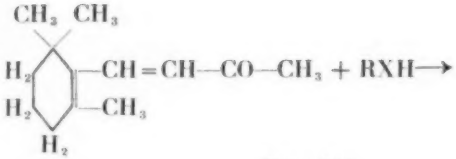
3. The polyether acetal resulting from step 2(*c*) above, which possesses the skeleton of vitamin A is subjected to dealcoholation and hydrolysis of the acetal radical, to form the corresponding pentaolefinic aldehyde corresponding to vitamin A as follows:

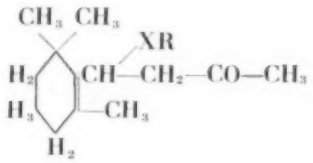


4. The aldehyde radical of the compound obtained as indicated in step 3 above, is reduced to an alcohol radical, forming vitamin A.

U.S. 2,586,306 deals with essentially the same process except that the side chain unsaturation of beta-ionone may be partially or completely eliminated at the outset as follows:

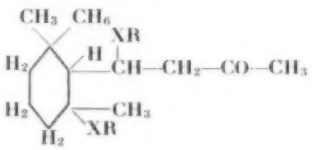
Addition of an alcohol or mercaptan to beta-ionone:





(X representing oxygen or sulfur, and R representing the hydrocarbon radical of the alcohol or mercaptan.)

When 2 mols of RXH instead of 1 mol react with beta-ionone, the resulting product has the formula:



### Sulfamate Antiperspirants

Lester D. Apperson obtained three patents, U.S. 2,586,287, 2,586,288 and 2,586,289, the former two in conjunction with E. L. Richardson, all of the patents being assigned to Colgate-Palmolive-Peet. These patents note that aluminum and zinc sulfamates are superior to aluminum sulphate as perspiration retardants and are practically non-tendering to clothing fabrics. In the case of aluminum sulfamate, however, some discoloration of cellulosic fibers was noted and Apperson and Richardson suggest four different groups of discoloration inhibitors as follows:

Group 1—Amides which are neutral and contain the functional group $-\overset{\overset{O}{\|}}{C}-NH_2$,

Group 2—Amino carboxylic acids which contain the functional group $\equiv C-NH_2$,

Group 3—Compounds which are salts of non-hydroxy non-mercapto saturated carboxylic acids and ammonia bases, and

Group 4—Compounds which contain the functional group $\equiv C-S-H$.

Zinc sulfamate is said to be free of the discoloration factor.

### New Germicides

Melville Sahyun, of St. Johns, Michigan, has recently won a patent, U.S. 2,584,160, covering as new compounds dialkylammoalkyl esters of phenyl halogenated ortho-hydroxybenzoic acids.

These compounds are stated to have value as germicides and bactericides, being very active at dilutions of one to ten thousand against staph. aureus. No specific applications of the compounds, however, are given in the patent itself.

(*Continued on page 562*)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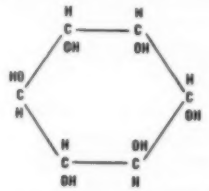

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### Inventor and Owner Distinguished

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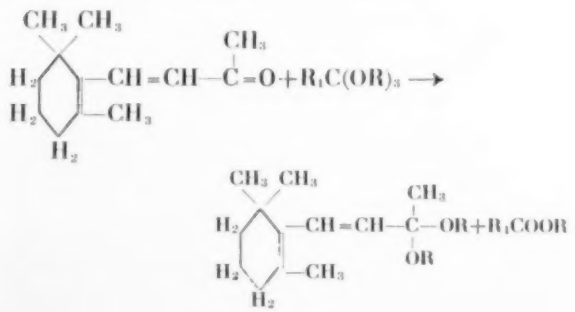
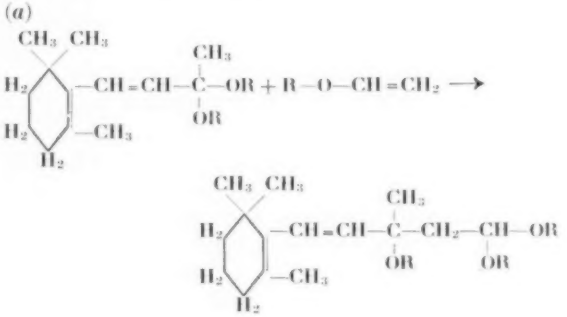
1. Conversion of beta-ionone to a ketal thereof by reaction with an ortho-carboxylic acid ester, as indicated by the following equation:



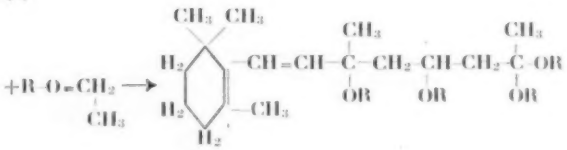
(R$_1$ being hydrogen or a hydrocarbon radical, and R representing the residue of an alcohol.)

2. Condensation of the resulting beta-ionone ketal, successively, with 1 mol of an alkyl vinyl ether, 1 mol of an alkyl isopropenyl ether, and 1 mol of an alkyl vinyl ether, forming a series of ether acetals in accordance with the following equations:

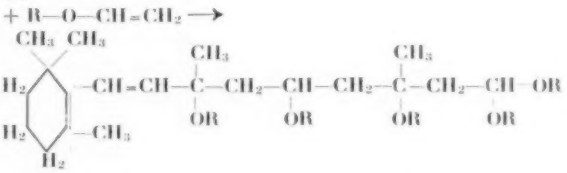
(*a*)



(*b*)

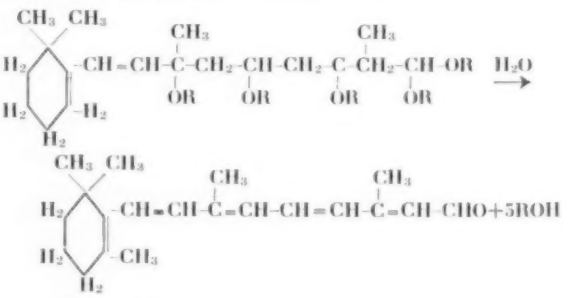


(*c*)



(R representing the hydrocarbon radicals of the ketals and of the vinyl or isopropenyl ethers.)

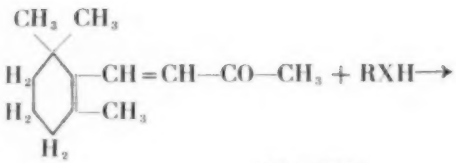
3. The polyether acetal resulting from step 2(*c*) above, which possesses the skeleton of vitamin A is subjected to dealcoholation and hydrolysis of the acetal radical, to form the corresponding pentaolefinic aldehyde corresponding to vitamin A as follows:

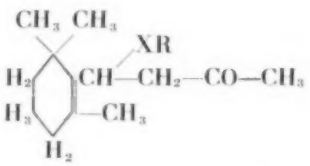


4. The aldehyde radical of the compound obtained as indicated in step 3 above, is reduced to an alcohol radical, forming vitamin A.

U.S. 2,586,306 deals with essentially the same process except that the side chain unsaturation of beta-ionone may be partially or completely eliminated at the outset as follows:

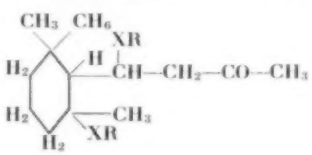
Addition of an alcohol or mercaptan to beta-ionone:





(X representing oxygen or sulfur, and R representing the hydrocarbon radical of the alcohol or mercaptan.)

When 2 mols of RXH instead of 1 mol react with beta-ionone, the resulting product has the formula:



### Sulfamate Antiperspirants

Lester D. Apperson obtained three patents, U.S. 2,586,287, 2,586,288 and 2,586,289, the former two in conjunction with E. L. Richardson, all of the patents being assigned to Colgate-Palmolive-Peet. These patents note that aluminum and zinc sulfamates are superior to aluminum sulphate as perspiration retardants and are practically non-tendering to clothing fabrics. In the case of aluminum sulfamate, however, some discoloration of cellulosic fibers was noted and Apperson and Richardson suggest four different groups of discoloration inhibitors as follows:

Group 1—Amides which are neutral and contain the functional group $-C(=O)-NH_2$,

Group 2—Amino carboxylic acids which contain the functional group $\equiv C-NH_2$,

Group 3—Compounds which are salts of non-hydroxy non-mercapto saturated carboxylic acids and ammonia bases, and

Group 4—Compounds which contain the functional group $\equiv C-S-H$.

Zinc sulfamate is said to be free of the discoloration factor.

### New Germicides

Melville Sahyun, of St. Johns, Michigan, has recently won a patent, U.S. 2,584,160, covering as new compounds dialkylammoalkyl esters of phenyl halogenated ortho-hydroxybenzoic acids.

These compounds are stated to have value as germicides and bactericides, being very active at dilutions of one to ten thousand against staph. aureus. No specific applications of the compounds, however, are given in the patent itself.

*(Continued on page 562)*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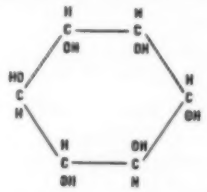

Inositol is a hexahydroxycyclohexane having important biological activity. It is generally accepted as a member of the vitamin-B complex. Inositol is recognized as one of a group of substances, known as lipotropic agents, which are of primary importance in the utilization of fat in the body.

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A comprehensive review of the literature on the biochemistry of Inositol is available upon request.

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(*Continued from page 561*)

## RECENT PATENTS

*2,581,336*—**Ciba—Phenoxyethyl - Dimethyl - Dodecyl-Ammonium Halides.**

*2,581,350*—**Ayerst, McKenna & Harrison—2-Aminopyridine Salt of Estrone Sulfate.**

*2,581,397*—**Central Pharmacal Co.—Amino Acid Salts of Mersalyl.**

*2,581,814*—**R. L. Evans—Glutamyl Histidine.**

*2,582,252*—**Upjohn—2 - Alkoxyphenethyl - 6 - Carboxy-cyclohexene-1-One-3-Esters.**

*2,582,253*—**Upjohn—Synthetic Estrogens.**

*2,582,255-7*—**Parke, Davis—Amine - esters and Salts.**

*2,582,587*—**Sharpe & Dohme—N - Alkylaminepropiophenones.**

*2,583,194*—**Eastman Kodak—Vitamin A Derivatives.**

*2,583,508*—**Ciba—B, B, B-Trichlorethylidene-Acetyl thiophenes.**

*2,583,534*—**Commercial Solvents—Streptomycin Glucuronate.**

*2,583,558,9*—**Morgan - Sabold Products — Polyglycine Dihydroheptiodide.**

*2,583,774*—**Merck—Vitamin $B_6$ Derivatives.**

*2,584,024*—**Merck—2,4,5 - Triamino - 6 - Alkoxy Pyrimidnes.**

*2,584,131*—**Upjohn—Pyrrolidyl Thiolesters.**

*2,584,137*—**Upjohn—Androstatrien - 17 - One Adducts.**

*2,584,271*—**G. D. Searle—Steroid Derivatives.**

*2,584,538*—**Am. Cyanamid—6 and 7 - Bromomethyl Pteridines.**

*2,584,627*—**Sharp & Dohme—Stabilized Vitamin $B_{12}$ Composition.**

*2,584,639*—**Hoffmann-La Roche—Carboxyalkylmercapto Stibonic Acid Compounds.**

*2,585,048*—**Onyx Oil & Chem. Co.—Carboxylated Methyl Cellulose with Ouaternary Ammonium Compound as Topical Remedy.**

*2,585,210*—**Sterling Drug—Piperidine Carboxylic Acid Esters.**

*2,585,239*—**Bristol Labs—Amine Salt of Penicillin.**

*2,585,432*—**Bristol Labs—Dibenzylamine Salts of Penicillin.**

*2,585,436*—**Bristol Labs—Penicillin Salts of Amines Derived from Rosin.**

*2,585,512*—**Bristol Labs—Nonyl Amine Salts of Penicillin.**

*2,585,550*—**Ciba Pharmaceutical Products—Para - Halogen-phenyl-Pyridylalkanones.**

*2,585,905, 6, 9, 10, 17, 35, 36, 72, 79*—**Imperial Chemical Industries—Quaternary Salts of Pyrimindines and Processes Therefor.**

*2,586,329*—**Ernst Bischoff Co. — Aminophylline Fatty Alcohol Suppository.**

*2,586,343*—**Armour & Co.—Synthetic Estrogens.**

*2,586,370*—**Eli Lilly—N-Dimethylaminoethyl - 9 - Methyl-Acridan.**

*2,586,762*—**Chas. Pfizer & Co.—Netropsin.**

*2,586,766*—**Am. Cyanamid—Purifying Aureomycin by Chromatographic Adsorption.**

*2,586,793*—**Dow—Preventing Infection by Coccidia by Employing a Bromoalkene.**

*2,586,849, 50*—**Upjohn — 2 - Isopropylmethylaminoalkyl Esters of Phenyl-cyclohexenylacetic Acid and Salts.**

*2,587,457*—**Dawe's Products Co.—Production of Vitamin A.**

*2,587,574*—**Commercial Solvents—Penicillin Salts of (1,1-Dimethyl-2-Hydroxypropyl) Amine.**

*2,587,579*—**Research Corp.—Intermediates in the Synthesis of Dehydro-corticosterone.**

*2,587,641*—**Parke, Davis—1-p-Nitrophenyl - 2 - Cyclic Carbonate and Sulfite.**

*2,587,936*—**Mallinckrodt Chemical Works — Iodinated 2-Acylamino Benzoyl Derivatives of Amino Acids.**

*2,588,197*—**Emulsol Corp. — Cream and Paste Shampoos. Sodium salts of the sulfates of the amides of isopropanolamine and monoethanolamine with lauric or myristic acids or coconut oil fatty acids or fractions thereof are used as the foaming or cleansing agents.**

*2,588,517*—**Bristol Labs.—Biphenyl Amine Salts of Penicillin.**

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## Factors Governing Today's Life Span

(*Continued from page 519*)

Whether the Eskimo's freedom from cancer is due to his comprehensive carnivorous diet, or whether this immunity is due to his avoidance of the carbohydrates of civilization, remains to be proven. The answer would be worth any effort necessary for its determination.

According to Macdonald[21] the North American Indian was practically free from malignant disease—but only until the "reservation" era began. Hrdlicka[22], after extensive surveys, declares that neoplastic disease must be extremely rare among the Southwestern and Mexican Indians. Hoffman[23] carried out exhaustive inquiries relative to the prevalence of cancer among the Indians of Bolivia, Arizona and New Mexico. From these efforts he concluded that cancer mortality among these groups was a rare occurrence. The reservation Indian presents an entirely different picture. Their cancer death rate in 1921 was 17.5 per 100M; in 1922, 19.2; and in 1923, 22.5. Originally the diet of the American Indian was largely all forms of meat, fish, berries and a few crude products of agriculture. Today, like the white man, they live on the same devitalized, denatured and otherwise depreciated foodstuffs. Logically enough, they now succumb to the same pathologies as the white man. We have in the foregoing, brought to attention phenomena permitting a limited view of the behavior pattern of our most dread disease. Even though extremely limited and indecisive, there is sufficient evidence to incriminate abnormal nutrition as a major

force in the production of that cobra of civilization—neoplastic disease.

The leading degenerative diseases and their mortality rates for 1950 and 1911 are given in Table 8. All of these pathologies are chronic, disabling and all too frequently are an inquisition until released by death. They exact a heavy economic toll, are a serious strain on our medical facilities and pose difficult social problems. Our entire population, directly or indirectly, bears some share of the above burden. Now that infectious complications have been brought under control, these diseases are extended chronologically further aggravating the problem.

TABLE 8

RANK OF LEADING CAUSES OF DEATH. TOTAL PERSONS. METROPOLITAN LIFE INSURANCE CO.

| *1950* *Cause of death* | *Death rate per 100M* | *Per cent total* | *1911* *Cause of Death* | *Death rate per 100M* | *Per cent total* |
|---|---|---|---|---|---|
| Chronic Heart Disease* | 214.2 | 33.6 | Chronic Heart Disease | 145.7 | 11.6 |
| Cancer, all forms | 115.5 | 18.1 | Cancer, all forms | 68.0 | 5.4 |
| Cerebral Hemorrhage | 55.5 | 8.7 | Cerebral Hemorrhage | 64.2 | 5.1 |
| Chronic Nephritis | 30.9 | 4.9 | Chronic Nephritis | 95.0 | 7.6 |
| Diabetes Mellitus | 26.5 | 4.2 | Diabetes Mellitus | 13.3 | |

*Includes diseases of the coronary arteries and angina pectoris.

Another major degenerative illness very definitely guilty in shortening the days of our years is diabetes mellitus. With but rare exception, this disease is a direct sequel of dietary excess. Confirmation may be found in the fact that its victims are almost invariably obese. The death rate per 100M for diabetes for persons of normal weight is 14; for those 14 per cent overweight, 22; 15-24 per cent over-weight, 45; and 25 per cent over-weight, 117. Except for that one case in a thousand defined as glandular, obesity is a condition resulting from hyper-nutrition. The etiology of this type of indulgence has been reviewed in some detail. Persons thus affected gravitate towards refined and concentrated starches and sugars with an accompaniment of fats—foods of a high taste value and high caloric content. Man's ability to metabolize starches and sugars is quite limited. He is a carnivorous animal and is not geared for herbivorous foodstuffs—the carbohydrates belonging to this latter classification. Overtaxing the Isles of Langerhans means sooner or later failure to produce insulin and then the condition becomes known as diabetes mellitus. That this failure is the result of over-eating is abundantly evident from the radical incidence differentials between persons of normal and hyper-normal weights. Metropolitan Life Insurance Co. points out that the incidence and mortality of diabetes was appreciably reduced during the war years in the U.S. Our allies also noted a similar reduction, which was due to the food shortage, especially sugar. Reduced mortality among diabetics during the war has been partly attributable to their employment in industry which improved their morale giving them strength enough to adhere to a rigid diet.

Sugar Research Institute claims the per capita consumption of sugar in U.S. today is 101 pounds annually. Another source of information reports 140 pounds per person annually. No matter which figure is correct, the American public is consuming a staggering amount of sugar in one form or another. America ate 1 and

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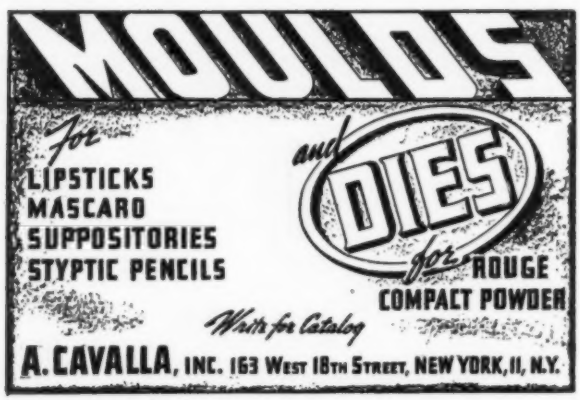




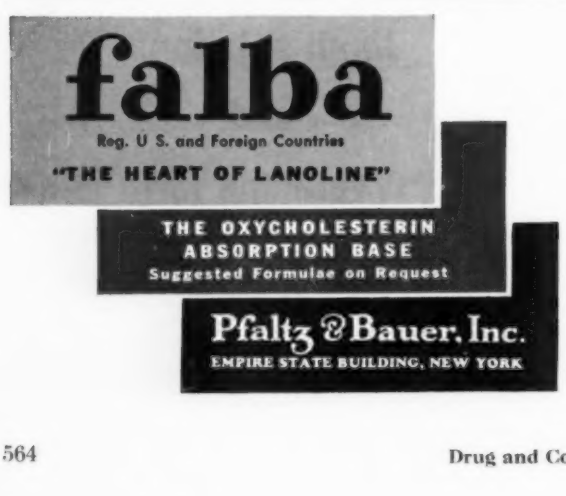
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¼ billion dollars worth of candy last year. We will again admit that in extremely rare instances diabetes might be congenital or engendered by some idiopathic circumstance—but by far and large this disease is directly the outcome of dietary abuses. Diabetes mellitus is an insidious, subtle, vicious illness. It is incurable and in full-blown cases, life is possible only through the grace of artificially supplied insulin. Diabetes is the modern sword of Damocles. Hanging over the victim, as deadly as the hair suspended sword, is the inexorable equation of time, calories and insulin, which must, with merciless precision, be balanced daily—failure being heralded by shock, coma, and possibly death. This disease is the precursor of a host of seemingly unrelated pathologies such as vascular deterioration, lowered resistance to bacterial invasion, diabetic neuritis and nutritional deficiencies. In its quiet deadly way, diabetes must be accorded the distinction of being one of the worst ills civilization has thus far sired. No price would be too high to avoid this disease. Nutritional education would go a long way in the reduction of its incidence.

Vascular disease encompasses a number of major subdivisions, primarily such degenerative pathologies as arteriosclerosis of several types, hyper-tensive arteriosclerosis and simple vascular fragility. We shall omit those conditions produced by faulty enervation. In its entirety, vascular deterioration commands respect for among other things, it ranks third in the mortality scale by virtue of cerebral hemorrhage. The simplest and earliest sign of degeneration is capillary fragility. Purpura simplex, or "black and blue" marks in the skin is the rupture of and hemorrhage from capillary vessels. Fifty per cent of all females of adult or near adult age are subject to this condition—admitting the appearance of "black and blue" marks without any conscious or known trauma. So weakened are the vascular walls involved, that they are microscopically fissured by imperceptible mechanical impact. These same females will almost invariably also confess "pink tooth brush", after brushing their teeth. This is an identical symptom with the above except in another locality. The tooth brush bristles are sufficiently traumatic when in contact with the weakened gum tissue, to rupture the microscopic vessels with resultant bleeding. Among males, purpura simplex is not as common as among females but pink tooth brush is about equal in both sexes affecting about 35 per cent of all adults. Loss of tonicity of gum tissue, if chronic or excerbated, paves the way for the invasion of pathogenic organisms resulting in such oral disorders as Vincents angina, etc.

Reduction of vascular wall integrity will eventually through chronic or etiologic attenuation, seriously reduce the structural strength of arterioles, arteries, and veins. Affecting the surface veins of the legs, the condition is known as varicose veins. The definition of same is, "abnormally lengthened, dilated, sacculated superficial veins. They are more or less always found in the lower extremities and in the lower abdominal region. Because of reduced vascular tonicity, the vein

undergoes dilation, elongation, loss of elasticity and disappearance or atrophy of valves. These changes are initiated by even normal venous pressure, or by decreased support from connective tissue. Physical effort, long periods of standing and pregnancy all accelerate or extend deterioration. A high percentage of adult females are afflicted with this disease. It is distressing psychologically, physiologically and cosmetically. The generally accepted etiology is hereditary weakness in the structure of the vein wall and also possibly of the valves. This, the writer rejects. Bleeding gums, "black and blue" marks and varicosities, all have a common denominator—degeneration of vascular tissue engendered by an insufficiency of intracellular cement or vitamin "C". There are several other disorders which might bring about the above syndrome but they are so rare as to be practically negligible.

There are no mortality figures for bleeding gums, "black and blue" marks nor varicose veins. These signs are an early warning to the effect that vascular wall integrity is being seriously depreciated in visible areas. If this is fact, the same is also occurring internally, in the deep, infinitely delicate recesses, such as the brain. Weakened arterioles in this organ, when subject to chronic, abnormally high, arterial pressures, can and do rupture. If the vessel is tiny, hemorrhage is light and we note merely loss of function of a greater or lesser degree. If a larger vessel is involved, death follows. This catastrophe happens frequently enough to place cerebral hemorrhage as the third most important weapon in the armament of the "grim reaper". As stated earlier, ascorbic acid seems to be essential for the proper formation and maintenance of intercellular material such as the cement substance of endothelial tissue. A deficiency of vitamin C reduces the cellular cohesion of vascular walls with the inevitable loss of wall strength and lowered resistance to trauma—such trauma being either impact or internal fluid pressure. In the mild, early stages, such as bleeding gums and purpura simplex, the administration of 1000 mg. of ascorbic acid daily with a pint of fresh orange juice, will cure the condition in several months. Rutin could also be used but is expensive and offers no particular advantage. The advanced cases such as varicose veins are of course irreversible but at least extension could be arrested by the above treatment.

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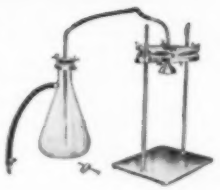

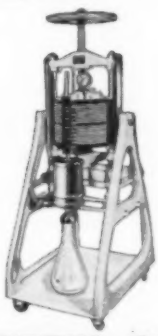

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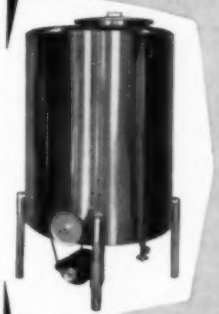

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